AUSTRALIAN NEREIDAE

Including descriptions of three new species and one genus, together with summaries of previous records and keys to species.

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SUMMARY

The Australian (and New Zealand) Nereidae are recorded with 47 species in 13 genera. One genus, *Australonereis* is new; two species, *Ceratocephala edmondsi* and *Micronereis halei*, and one subspecies, *Platynereis dumerilii antipoda* are newly described. There are many new records of distribution, particularly for the species occurring in the Flindersian and Peronian provinces. The recorded data of all the species are summarised in a series of charts.

INTRODUCTION

The polychaetous annelids of the family Nereidae are among the more conspicuous, well represented groups of marine invertebrates in the Commonwealth of Australia and the Dominion of New Zealand. As in other known geographic areas, they are largely littoral. Curiously, however, the present study indicates that the nereids, at least for the southern half of Australia, are unusually diversified and modified, probably more so than in any other geographic area of comparable size. Thus, among the 47 species in 13 genera, there are some with very primitive characters, such as presence of setae in the first segment; others, such as *Australonereis*, have functional coelomoducts and papillated ventrum. These facts make it particularly desirable to recognize their positions or affinities with the nereids of other parts of the world.

In spite of the fairly large number (47) recorded here, it can hardly be assumed that the number of species is even nearly complete. Much of the coastline remains almost unknown with respect to its polychaetous fauna. The records to date are largely those made by incidental collecting. There have been no extensive surveys of coastal areas such as was done for the echinoderms (Clark, 1946).

Recent studies by Knox (1951) on the nereids of New Zealand indicate that there are conspicuous differences in the fauna of the Dominion and the Commonwealth, at least for its southern half. Comparison has been difficult in many cases for the literature is scattered and sometimes obscure in essential details. Type collections, if existing, are often deposited in museums outside of Australia.

An attempt is here made to correlate and assemble these scattered data. Charts I to IV summarize the records of the 47 species, including: acceptable name, date and source of original publication, place of origin, diagnostic accounts, synonyms, distributional data and new records, ecologic niche, unique characteristics, method of reproduction in so far as known, and the formulae of the proboscidial processes.

The materials on which these studies are based were collected mainly from littoral zones of South Australia, Victoria and New South Wales, thus are largely south-eastern Australia. These areas fall within the Peronian and Flindersian provinces of Hedley. Based on studies of the echinoderm fauna, H. L. Clark (1946) finds that these two provinces have the most numerous endemic species (82% of the Peronian and 89% of the Flindersian echinoderms are endemic in Australia). If the annelids are equally unique, as a comparison of the charts indicates, one may expect a widely diversified polychaetous fauna.

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Types and complete series of species are deposited in the institutions from which the collections originate. Duplicate series are in the Allan Hancock Foundation.

CHART I.

Name of Species	Date and source of publication	Place of origin	Diagnostic account	Synonyms
Australonereis ehlersi (Augener)	1913, pp. 142-145, figs.	Swan River area, W.A.	Monro, 1938, pp. 618-623, and below	*Nereis (Leonnates) ehlersi* Augener, 1913, and *Leptonereis ehlersi* Monro, 1938
Ceratocephala edmondsi, n. sp.	Herein	South Australia	Below	——
Ceratonereis mirabilis Kinberg	1866, p. 170	Brazil	Augener, 1913, pp. 168-171; Horst, 1924, pp. 180-182 figs.	*Ceratonereis tentaculata* Kinberg, 1866
Ceratonereis lapinigensis Grube	1878, pp. 69-70	Philippine Islands	Augener, 1913, pp. 166-168	Possibly the same as *C. costae* Grube, 1840
Ceratonereis aequisetis Augener	1913, pp. 171-174 figs.	Swan River area W.A.	(See original)	Questionably includes *C. erythraeensis* (fide Monro, 1938)
Ceratonereis erythraeensis Fauvel	1918, pp. 505-506 figs.	Madagascar	Fauvel, 1919, pp. 407-410 figs.	Possibly the same as *S. aequisetis* Augener
Cheilonereis peristomialis Benham	1916a, pp. 392-393	New Zealand and South Australia	Benham, 1916b, pp. 138-143, figs.	——
Micronereis halei, n. sp.	Herein	South Australia	Below	——
*Namanereis** *quadraticeps* (Blanchard)	1849, p. 25, figs.	Chile	Benham, 1909, pp. 242-244, figs.	*Lycastis quadraticeps* Blanchard 1849 and others
Nicon aestuariensis Knox	1951, pp. 225-227, figs.	Banks Peninsula, N.Z.	(See original)	——
Neanthes vaalii Kinberg	1866, p. 171	Pt. Jackson, N.S.W.	Augener, 1913, pp. 149-153; Augener, 1924, p. 316	*Nereis albanyensis* Augener
Neanthes cricognatha (Ehlers)	1905, pp. 29-30 figs.	New Zealand	Benham, 1916, p. 134	*Nereis arenaceodentata* Benham, 1916
Neanthes, near *cricognatha* (Ehlers)	Herein	South Australia	Below	——
Neanthes kerguelensis (McIntosh)	1885, pp. 225-227 figs.	Kerguelen Islands	Augener, 1924, p. 330; Augener, 1913, pp. 164-166	*Nereis kerguelensis* var. *oligodonta* Augener, 1913 (?) (see below)
Neanthes oxypoda (Marenzeller)	1879, pp. 120-121 figs.	Southern Japan	Monro, 1938, p. 614, figs.	*Nereis (Alitta) oxypoda* Marenzeller, 1879

* *Namanereis* Chamberlin, 1919, has priority over *Lycastella* Feuerborn, 1931. Both generic names were proposed for the same species, *Lycastis quadraticeps* Blanchard, as type.

Name of Species	Date and source of publication	Place of origin	Diagnostic account	Synonyms
Neanthes unifasciata (Willey)	1905, pp. 271-277 figs.	Ceylon	Monro, 1931, p. 13	*Nereis unifasciata* Willey, 1905
Neanthes angusticollis (Augener) (not *Nereis angusticollis* Kbg.)	1913, pp. 145-149 figs.	Sharks Bay, W.A.	(See original)	——
Eunereis marri Monro	1939, p. 117 figs.	Off South-western Australia	(See original)	——
Nereis falcaria (Willey)	1905, p. 117, figs.	Ceylon	Fauvel, 1921, pp. 8-11, figs. Augener, 1923, pp. 21-26, figs.	*Nereis kauderni* Fauvel, 1921 *Nereis mortenseni* Augener, 1923
Nereis denhamensis Augener	1913, pp. 156-159, figs.	Sharks Bay, W.A.	(See original and below)	——
Nereis jacksoni Kinberg	1866, p. 169	Pt. Jackson, N.S.W.	Augener, 1913, p. 159, figs. Augener, 1924, p. 317	*Nereis heirissonensis* Augener, 1913 p. 159, figs.
Nereis thompsoni Kott	1951, p. 103-105, figs.	Western Australia	Kott, 1951, p. 103-105, figs.	*Nereis (Neanthes) thompsoni* Kott, 1951
Nereis peroniensis Kott	1951, pp. 101-102, figs.	Point Peron, W.A.	(See original and below)	*Nereis callaona peroniensis* Kott, 1951
Nereis cockburnensis Augener	1913, pp. 153-156, figs.	Cockburn Sd., W.A.	(See original and below)	——
Nereis languida Kinberg	1866, p. 169	Pt. Jackson, N.S.W.	(See original; doubtful)	——
Nereis robusta Quatrefages	1865, pp. 544-545	New Zealand	(See original; doubtful)	——
Perinereis amblyodonta (Schmarda)	1861, p. 106 figs.	Pt. Jackson, N.S.W.	Knox, 1951, pp. 221-222, figs.	*Nereilepas amblyodonta* Schmarda, 1861; *Perinereis novae-hollandiae* Kinberg, 1866
Perinereis variodentata Augener	1913, pp. 179-182, figs.	Albany, W.A.	(See original and below)	——
Perinereis vallata (Grube)	1857, pp. 159-160	Chile	Knox, 1951, pp. 218-219, figs.	*Nereilepas pacifica* Schmarda, 1861
Perinereis brevicirris (Grube)	1866, pp. 176-177	St. Pauls Island (*Novara* Exp.)	Knox, 1951, pp. 219-220, figs.	*Perinereis heterodonta mictodontoides* Augener, 1913
Perinereis camiguinoides Augener	1922a, pp. 180-183 figs.	Chile	Knox, 1951, pp. 220-221, figs.	*Nereis vancaurica* Ehlers, 1905
Perinereis barbara Monro	1926, pp. 318-320, figs.	N.S.W. and Eastern Australia	(See original)	——
Perinereis ponuiensis Augener	1924, pp. 349-352, figs.	New Zealand	(See original)	——

Name of Species	Date and source of publication	Place of origin	Diagnostic account	Synonyms
Perinereis pseudocamiguina Augener	1922, pp. 183-186, figs.	Chile	Monro, 1939a, p. 118	Possibly the same as *Perinereis helleri* or *P. camiguina* (fide Monro 1939
Perinereis calmani Monro	1926, pp. 318-320, figs.	N.S.W. and Eastern Australia	(See original)	——
Perinereis nigropunctata (Horst)	1889, pp. 171-174, figs.	Malay	Augener, 1929b, p. 24, figs.	*Perinereis yorkensis* Augener, 1922b
Perinereis vancaurica (Ehlers)	1868, p. XX	Nicobar Island	Monro, 1931, p. 14; Fauvel, 1933, pp. 34-35	*Nereis languida* Grube, 1868; *Perinereis nancaurica* (variant)
Perinereis obfuscata Grube	1878, pp. 86-87	Philippine Islands	Monro, 1931, pp. 16-18, figs.	——
Perinereis helleri Grube	1878, pp. 81-82	Philippine Islands	Monro, 1931, pp. 14-15, figs.	——
Perinereis camiguina Grube	1878, pp. 87-89, figs.	Philippine Islands	Monro, 1931, pp. 15-1½, figs.	——
Platynereis australis (Schmarda)	1861, p. 101 figs.	New Zealand	Knox, 1951 (pp. 223-225, figs.	*Heteronereis australis* Schmarda
Platynereis dumerilii antipoda, new species	Herein	South Australia	(See below)	(see below)
Platynereis magalhaensis Kinberg	1866, p. 177	Straits of Magellan, Chile	Monro, 1930, pp. 106-107, figs. Monro, 1936, pp. 137-138	(see below)
Platynereis polyscalma Chamberlain	1919, pp. 219-226, figs.	South Pacific Islands	Fauvel, 1932, p. 114; and original	——
Platynereis bicanaliculata (Baird)	1863, p. 109	Vancouver Island, Canada	(See below)	(see below)
Pseudonereis rottnestiana Augener	1913, pp. 184-187	Rottnest, Green Is., W.A.	Augener, 1913, pp. 184-187	——
Pseudonereis anomala Gravier	1901, pp. 191-197, figs.	Red Sea	Fauvel, 1922, p. 494; Kott, 1951, pp. 93-95, figs.	*Nereis nichollsi* Kott, 1951

In addition, *Nereis ruficeps* Ehlers (1905, pp. 24-25, pl. 3, figs. 10-15) has been described from Chatham Island off New Zealand. It appears to be a species of *Neanthes* since notopodia have only spinigerous setae. It differs from other species of *Neanthes* recorded above in that areas V and VI of the proboscis are bare; tentacular cirri are articled and rather short.

(?) *Nereis neozealandica* Benham listed by Knox (1951, p. 213) is presumably a manuscript name only.

CHART II.

Name of species	New locality	More extensive distribution	Ecologic niche
Australonereis ehlersi	Victoria at Lakes Entrance	Swan River area, Western Australia	In sandy mud flats, occupying thin, U-shaped tubes (B. Dew)
Ceratocephala edmondsi	Kangaroo Island, Sth. Aus.	——	Common in muddy and sandy tidal flats: tube sandy (S. J. Edmonds)
Ceratonereis mirabilis	Spencer Gulf, S.A.; western shoal in 30 feet	Circummundane in warm seas	In rock and shell gravel, in mud and on reefs (Monro, 1931)
Ceratonereis lapinigensis	Port Willunga, S.A.; Lakes Entrance, Vic.; Pitwater, Broken Bay, N.S.W.	Western Australia (Augener, 1913; Monro, 1939b)	On piles, sponges and bryozoans; along shore to 40 fms. (Monro, 1939b)
Ceratonereis aequisetis	——	Western Australia at the Swan River area	Along the strand in marine conditions (Augener, 1913)
Ceratonereis erythraeensis	——	Madagascar, and Swan River, W.A. (Monro, 1938)	Same as for *C. aequisetis* (Monro, 1938); in coral debris (Okuda, 1940, p. 9)
Cheilonereis peristomialis	——	New Zealand and South Australian Bight	In gastropod shell with hermit crab, or free-living (Benham, 1916)
Micronereis halei	Sellick Beach, Sth. Aus.	——	At exposed, outer edge of reef (H. M. Hale)
Namanereis quadraticeps	California	Auckland Island (Augener, 1923); New Zealand (Benham, 1909); Southwest Africa (Augener, 1918)	Under stones in varying salinities of high intertidal zones (Augener, 1923)
Nicon aestuariensis	——	New Zealand	Burrows in mud of estuaries with up to 3 hours exposure; number up to 150 per sq.m. (Knox, 1951)
Neanthes vaalii	Kangaroo Island, Sth. Aus.; New South Wales	New Zealand; Tasmania (Monro, 1939a)	Among sand, rock and weed (Knott, 1951)
Neanthes cricognatha	Sellick Beach and Port Adelaide, S.A.; Cronulla, N.S.W.	New Zealand; Western Australia (Knox, 1951, and Augener, 1913)	Intertidal to 55 fms.
Neanthes near *cricognatha*	American River, Kangaroo Island, Sth. Aus.	——	In colonies of the serpulid, *Galeolaria* (S. J. Edmonds)
Neanthes kerguelensis	Port Willunga and Sellick, Sth. Aus.	New Zealand; Tasmania and Sub-Antarctic (Augener, 1924)	On reefs and rocks; in sand (Augener, 1913)
Neanthes oxypoda	——	Japan; China; South-west Australia (Monro, 1938)	Mouth of the Swan River, W.A. (Monro, 1938)
Neanthes unifasciata	——	Great Barrier Reef (Monro, 1931)	On reefs (Monro, 1931)
Neanthes angusticollis	——	Sharks Bay, Western Australia	(Not known)

Name of Species	New locality	More extensive distribution	Ecologic niche
Eunereis marri	——	Off Southwestern Australia in 62 metres	(Not known)
Nereis falcaria	——	Ceylon; Madagascar; New Zealand; subtropical (Knox, 1951; Fauvel, 1935, p. 302)	In sandy loam in 45 fms; under littoral stones (Augener, 1923)
Nereis denhamensis	New South Wales	Southwest Australia and South Australia (Benham, 1916)	Intertidal to 11 metres (Augener, 1913)
Nereis jacksoni	Sellick Beach, Sth, Aus.; New South Wales	S. and S.W. Australia; New South Wales (Monro, 1937; Fauvel, 1947; Augener, 1924)	Sandy or rocky shores, shore to 14 metres; on fouling plate in estuary (B. Dew)
Neries thompsoni	——	Rottnest, Point Peron and Aldritch's Cove, Nornalup, W.A.	(Not known)
Nereis peroniensis	——	Western Australia	Probably rocks (Kott, 1951)
Nereis cockburnensis	Kangaroo Island and Sellick Beach, S.A.; N.S.W.	Western Australia	Among algae and their holdfasts on calcareous rock platforms (S. J. Edmonds) and from stones in rocky pools (H. M. Hale)
Nereis languida	——	Port Jackson, N.S.W.	(Not known)
Nereis robusta	——	New Zealand	(Not known)
Perinereis amblyodonta	American River, Kangaroo Is.; Port Willunga, S.A.; Port Jackson, N.S.W.	Southern and Western Australia; New Zealand; Indo-Pacific; Knox, 1951; Fauvel, 1947)	Under rocks and in mud flats; on piles and mooring chains and in clumps of *Galeolaria* (S. J. Edmonds and B. Dew)
Perinereis variodentata	Sellick Beach, S.A.; Port Wynyard, N.W., Tasmania	Western Australia (Augener, 1913)	From stones in rock pools and in limestone reefs (H. M. Hale)
Perinereis vallata	——	New Zealand; Southern Australia (Knox, 1951)	Intertidal, low water to 3 hour exposure; in mud among stones; in branching, slime-lined burrows (Knox, 1951)
Perinereis brevicirris	——	New Zealand; Indo-Pacific; Western Australia (Knox, 1951)	In estuaries; burrows in sand and mud; associated with *P. vallata* (Knox, 1951)
Perinereis camiguinoides	——	Southern Chile; New Zealand	Intertidal, under stones, to 35 fms. (Knox, 1951)
Perinereis barbara	——	Port Jackson, N.S.W.	(Not known)
Perinereis ponuiensis	——	New Zealand; Auckland Islands; North Cape (Augener, 1924)	Under stones along the coast (Augener, 1924)
Perinereis pseudocamiguina	——	Southern Chile; New Zealand; Tasmania (Monro, 1939)	Between tide marks, lower Derwent River, Hobart, Tasmania (Monro, 1939a)

Name of Species	New locality	More extensive distribution	Ecologic niche
Perinereis calmani	Pt. Jackson, Syd. Harbour, Pitwater, Broken Bay and Athol Bight, N.S.W.	China Sea and Eastern Australia (Monro, 1926)	Among tubes of *Galeolaria*, under rocks in kelp holdfasts and on piles (B. Dew)
Perinereis nigropunctata	——	Indo-Pacific; North Australia (Augener, 1922); Great Barrier Reef (Monro, 1931)	Associated with *Perinereis camiguina* (Augener, 1922
Perinereis vancaurica	——	Great Barrier Reef (Monro, 1931); Philippines and New Zealand (Fauvel, 1923)	(Not known)
Perinereis obfuscata	——	Philippines; Indo-Pacific; Great Barrier Reef (Monro, 1931)	In lagoon of Great Barrier Reef (Monro, 1931)
Perinereis helleri	——	Indo-Pacific (Okuda, 1940); Great Barrier Reef (Monro, 1931)	In coral reef (Monro, 1931)
Perinereis camiguina	——	East and North Australia (Augener, 1922); Great Barrier Reef (Monro, 1931	Among coral rocks (Monro, 1931)
Platynereis australis	——	New Zealand (Ehlers, 1905; Augener, 1926; Knox, 1951)	Among shell fragments and sand, occupying tubes; intertidal to 50 fms. (Knox, 1951)
Platynereis dumerilii antipoda	South Australia and New South Wales	——	Among algae, on piles, on mooring buoys, on limestone reefs (see below)
Platynereis magalhaensis	——	Sub-Antarctic and Southern New Zealand (Augener, 1923)	Among algae and holdfasts (Hartman, 1952, in press)
Platynereis polyscalma	——	Indo-Pacific (Fauvel, 1931); Great Barrier Reef (Monro, 1931)	Epitokous stages in plankton
Platynereis bicanaliculata	New South Wales and California (see below)	Hawaii; Northeast Pacific to Western Canada	Among algae and holdfasts
Pseudonereis rottnestiana	——	Western Australia (Augener, 1913); Japan (Okuda, 1938)	On shallow reefs (Augener, 1913)
Pseudonereis anomala	——	Western Australia (Fauvel, 1922 and Kott, 1951); Red Sea (Gravier, 1901); East Indies (Horst, 1924)	Under stones (Gravely, 1927); among rocks and weed (Kott, 1951)

CHART III.

Name of species	Unique characteristics	Diagnostic setae	Method of reproduction	Position of modification, if any
Australonereis ehlersi	Ventrum with transverse rows of papillae	Falcigers limited to neuropodia	Presumably direct	——
Ceratocephala edmondsi	Long papillae on both rings of proboscis	Falcigers limited to neuropodia	(Not known)	——
Ceratonereis mirabilis	Anterior end of prostomium widely divergent; dorsal cirri very long	Falcigers limited to neuropodia	Epitoky (Horst, 1924 p. 180)	Male at 18/19
Ceratonereis lapinigensis	Anterior margin of prostomium entire; dorsal cirri not long	Falcigers limited to neuropodia	Epitoky (Kott, 1951, p. 107)	At 14/15 (sex not stated]
Ceratonereis aequisetis	Dorsal and ventral cirri greatly reduced	Falcigers limited to neuropodia	(Not known)	——
Ceratonereis erythraeensis	Large simple falcigers in posterior segments	Falcigers both simple and composite, limited to neuropodia	(Not known)	——
Cheilonereis peristomialis	Peristomium prolonged on ventral side to partly envelop prostomium	Falcigers limited to neuropodia	Epitoky (Benham, 1916, p. 142)	Female at 26/27
Micronereis halei	First segment is parapodial and setigerous	All setae of one kind, homogomph spinigers	(Not known)	——
Namanereis quadraticeps	Parapodia uniramous throughout	Spinigers above and falcigers below	Direct	——
Nicon aestuariensis	Proboscis lacks paragnaths; parapodia biramous	Long-appendaged heterogomph falcigers in neuropodia	Epitoky (Knox, 1951)	Body with 3 regions: 20 anterior, a median, and 20-30 posterior segments
Neanthes vaalii	High paragnathal count; parapodial lobes moderately small	Falcigers limited to neuropodia	Epitoky	Male at 18/19; Female at 20/21; with 2 body regions

Name of Species	Unique characteristics	Diagnostic setae	Method of reproduction	Position of modification, if any
Neanthes cricognatha	Oral ring of proboscis with continuous ring of cones	Falcigers limited to neuropodia	(Not known)	——
Neanthes near *cricognatha*	Oral ring with one row of large and many rows of tiny cones	Falcigers limited to neuropodia	(Not known)	——
Neanthes kerguelensis	Notopodial lobe diminishes in posterior segments	Falcigers limited to neuropodia	perhaps direct. (See Benham, 1916, page 133)	——
Neanthes oxypoda	Notopodial lobes enlarges greatly on both sides of base of dorsal cirrus	With spinigers only; falcigers absent	(Not known)	——
Neanthes unifasciata	Area V lacks paragnaths; dorsum with broad brown bands	Falcigers limited to neuropodia	Epitoky (Horst 1924 pp. 153-154)	Male at 16/17; Female at 18/19
Neanthes angusticollis	Dorsal lobe of posterior notopodia is triangular with dorsal cirrus attached at middle	Falcigers limited to neuropodia	(Not known)	——
Eunereis marri	Maxillary ring of proboscis lacks paragnaths	Notopodia with falcigers in which appendange is 2- or 3-dentate	(Not known)	——
Nereis falcaria	Prostomium incised in front; oral ring bare or with few paragnaths	Notopodial falcigers with appendage coarsely 2- or 3-dentate	Epitoky (Augener, 1914, p. 327)	Body with 3 regions in male; parapodial changes at 13/14 and last 50 segments unmodified
Nereis denhamensis	Notopodial lobe little reduced	Notopodial falcigers coarsely 2- or 3- dentate	Epitoky (Kott, 1951)	Body with 2 regions; change at 14/15 (sex not stated)
Nereis jacksoni	Notopodial lobe diminishes rapidly in back; proboscis with few cones	Notopodial falcigers coarsely 2- or 3- dentate	Absent or present (?) (Kott, 1951, p. 97)	At 13/14 (sex not stated)
Neries thompsoni	Paragnathal count higher than in *N. denhamensis*	Notopodial falcigers coarsely dentate	Direct	——

Name of species	Unique characteristics	Diagnostic setae	Method of reproduction	Position of modification if any
Nereis peroniensis	Area III with 3 cones in a transverse row; base of notopodial lobe prolonged	Short - appendaged homogomph falcigers present in posterior segments	(Not known)	——
Nereis cockburnensis	Notopodial falcigers of 2 kinds	Homogomph falcigers present in all notopodia	Epitoky in April or later	Female at 16/17
Nereis languida	Obscure	(Not known)	(Not known)	——
Nereis robusta	Obscure	(Not known)	(Not known)	——
Perinereis amblyodonta	Posterior notopodial lobe prolonged, rectangular	Falcigers limited to neuropodia	Epitoky (Augener, 1924, p. 343)	Female at 16 to 24/25
Perinereis variodentata	Areas V and VI of proboscis (see Chart IV)	Falcigers limited to neuropodia	(Not known)	——
Perinereis vallata	Area V and VI of proboscis (see Chart IV)	Falcigers limited to neuropodia	Subepitokes recorded Fauvel, 1919, p. 418)	——
Perinereis brevicirris	Area V of proboscis (see Chart IV)	Falcigers limited to neuropodia	Perhaps direct (Knox 1951, p. 220)	——
Perinereis camiguinoides	Area V and VI of proboscis (see Chart IV)	Falcigers limited to neuropodia	Epitoky (Knox, 1951, p. 221)	At 16/17 (sex not stated)
Perinereis barbara	Area V and VI of proboscis (see Chart IV)	Falcigers limited to neuropodia; all spinigers homogomph	(Not known)	——
Perinereis ponuiensis	Area V and VI of proboscis (see Chart IV)	Falcigers limited to neuropodia; acicula occur by twos	(Not known)	——
Perinereis pseudocamiguina	Posterior notopodial lobe greatly prolonged with dorsal cirrus inserted near distal end	Falcigers limited to neuropodia	(Not known)	——
Perinereis calmani	Area V of proboscis bare; dorsal cirrus short, attached to broad, qaudrate lobe	Falcigers limited to neuropodia	(Not known)	——

Name of Species	Unique characteristics	Diagnostic setae	Method of reproduction	Position of modification, if any
Perinereis nigropunctata	Area I with to 7 paragnaths; posterior notopodia prolonged in upper part	Falcigers limited to neuropodia	Epitoky (Horst 1889 p. 171)	Male at 15/16; Female at 18/19
Perinereis vancaurica	Area VI of proboscis (see Chart IV)	Falcigers limited to neuropodia	(Not known)	——
Perinereis obfuscata	Area VI of proboscis with a single curved ridge	Falcigers limited to neuropodia	Epitoky (Monro, 1931 p. 16)	Male at 13/14; Female at 17/18
Perinereis helleri	Area III of proboscis (see Chart IV)	Falcigers limited to neuropodia	(Not known)	——
Perinereis camiguina	Area III of proboscis (see Chart IV); dorsal cirri short (Monro, 1931, p. 15)	Falcigers limited to neuropodia	(Not known)	——
Platynereis australis	Natatory setae in female from setiger 30; homogomph falcigers present in some notopodia	Homogomph falcigers with long, slender appendage	Epitoky (Schmarda, 1861; Ehlers, 1904 and others)	Female at 30/31; Male at 19/20, or at 23/24 (see below)
Platynereis dumerilii antipoda	Acicula light to dark brown; dorsal and ventral cirri thick at base, slender distally; spinigers short-appendaged	Notopodia with homogomph falcigers and spinigers	Epitoky (see below)	Female at 22/23
Platynereis magalhaensis	Notopodial falcigers absent or inconspicuous	Notopodia with spinigers, neuropodia with spinigers and falcigers	Epitoky (Ehlers 1897)	Male at 20/21; Female at 25/26
Platynereis polyscalma	Transversely ribbed setae in far posterior segments; epitokes with greatly prolonged prostomium	Notopodial setae ribbed in distal ends	Epitoky (Chamberlin, 1919, p. 225)	Male at 14/15; Female at 22/23
Platynereis bicanaliculata	Notopodial falcigers conspicuous and usually dark at tip	Notopodia with simple falcigers; neuropodial falcigers composite	Epitoky (see below)	Male at 20/21 or 21/22
Pseudonereis rottnestiana	Posterior notopodial lobes long, rectilinear; areas V and VI of proboscis (see Chart IV)	Homogomph falcigers absent; heterogomph falcigers in neuropodia	(Not known)	——
Pseudonereis anomala	(Similar to *P. rottnestiana*)	Homogomph falcigers present; heterogomph falcigers in neuropodia	Epitoky (Gravier, 1901, p. 195)	Female at 16/17

CHART IV.

PARAGNATHAL PROCESSES ON MAXILLARY (I.-IV.) AND ORAL (V.-VIII.) RINGS OF THE PROBOSCIS

Name of species	Area I.	Area II.	Area III.	Area IV.	Area V.	Area VI	Areas VII & VIII
Australonereis ehlersi (See below)	Maxillary ring covered with long, slender papillae in one row				O	O	O
Ceratocephala edmondsi (See below)	One long papilla	O	5 cirriform papillae in one row		O	One papilla	9 cirriform papillae in one row
Ceratonereis mirabilis (Augener, 1913, p. 170)	O	2 to 16 cones	About 10 cones	About 16 cones	O	O	O
Ceratonereis lapinigensis (Augener, 1913, p. 167)	O	7 to 10 in a double row	4 to 7 in a transverse rectangle	12 to 14 in a triangle	O	O	O
Ceratonereis aequisetis (Augener, 1913, p. 173)	3-4 in tandem, or 6-9 in a group	Many in a crescent	A broad group	A transverse group of 5-7 rows	O	O	O
Ceratonereis erythraeensis (Fauvel, 1919, p. 408)	2 to 6 small cones	2 curved rows with about 12 cones	Many in several irregular rows	Many in a group and continuous with II. and III.	O	O	O
Cheilonereis peristomialis (Knox, 1951, p. 223)	1 or 2 in tandem	3 rows in a transverse patch	3 rows in a transverse patch	A rectangular patch	O	Oval group of 2 or 3 curved rows	A continuous band of many paragnaths
Micronereis halei (See below)	O	O	O	O	O	O	O
Namanereis quadraticeps (Benham, 1909, p. 242)	O	O	O	O	O	O	O
Nicon aestuariensis (Knox, 1951, p. 225)	O	O	O	O	O	O	O
Neanthes vaalii (Augener, 1913, p. 152, and below)	1 or 2 in tandem	10-12 in about 3 rows	About 25 in 2-4 rows	About 30 in a large group	3 in a triangle or 4	4 in a rectangle or 2-3	A band of about 60 cones in 2-3 rows, continuous with VI.

Name of species	Area I	Area II	Area III	Area IV	Area V	Area VI	Areas VII & VIII
Neanthes cricognatha (Knox, 1951, p. 217; Augener, 1913, p. 164)	About 4 in a square	About 30 in an oblique band	About 34 in a transverse cluster	About 40 in a triangular patch	V. to VIII. with a continuous band of many cones in 8 or 9 rows, or the rows number only 3-4 or 5-6.		
Neanthes near *cricognatha* (See below)	About 9 in quadrate arrangement	About 14 in triangle	About 40 in a transverse cluster	About 30 in a triangular patch	V. to VIII. with a continuous band of many cones in many rows and a single row of larger cones on the maxillary side		
Neanthes kerguelensis (Augener, 1913, p. 165)	O	6-7 in an oblique double row	4-5 in a triangle	8-10 in a triangular patch	O	One only	3 in a transverse row
Neanthes oxypoda (Monro, 1938, p. 615)	2 in tandem	Oval patch of 3 rows	One only	Small patch of 2 rows	one cone	About 9 in a circular patch	A continuous sparse band of 3-4 rows
Neanthes unifasciata (Horst, 1924, p. 154)	one cone or none	14-18 in a double row	20-25 in 3-4 rows in a transverse group	About 25 cones in 6-7 rows	O	5-8 cones in a small transverse group	A row of 5 distant cones
Neanthes angusticollis Augener, 1913, p. 149)	7-8 in an oval patch	At least 20 in an oblique patch	About 12 in a transverse oval group	About 25 in a large triangular group	O	6-9 in a rounded patch	A broad band, 5 deep midventrally to only 2-3 deep at the sides
Eunereis marri (Monro, 1939, p. 117)	O	O	O	O	V. and VI. with a continuous band of 2 rows		A continuous band of about 4 rows
Nereis falcaria (Knox, 1951, p. 215) (*not* as in Willey, 1905)	O	2-3 curved rows	A variable cluster	A crescentic group	O	A small cluster of tiny cones	7-9 larger cones in a row or with variable number of tiny cones
which gives:	O	5 cones	7 in 1 row	10 cones	O	O	O
Nereis denhamensis (Augener, 1913, p. 158)	1 or 2 tandem	13-16 in a double row	17-20 in a triple row	17-20 or 24 in 3 or 4 rows	O	8 small cones in 2 obscure rows	About 8-10 or 13-18 larger cones in a transverse row
Nereis jacksoni (Knox, 1951, p. 217; Kott, 1951, p. 95; Augener, 1913, p. 162)	O	2-3 curved rows, *or* a few, to only one	None *or* a transverse patch of 3-5-7 in a row, *or* triangle	A crescentic patch of 6-8-10 in 2-3 rows, *or* none	O	A small group *or* 1-4 in a row, *or* one, *or* none	A single row of about 7, *or* only 4 *or* 1-4 in a row, *or* none

Name of species	Area I	Area II	Area III	Area IV	Area V	Area VI	Areas VII & VIII
Nereis thompsoni (Kott, 1951, p. 104)	1 or 2 in tandem	2 oblique rows	4 cones with 3 in a row and 1 behind	About 20 cones in 2-3 irregular transverse rows	3 large cones in a triangle	4 cones in a rectangle	A row of larger cones and many smaller ones in about 6 rows behind
Nereis peroniensis (Kott, 1951, p. 101)	"Similar to that of *Nereis jacksoni*."—Kott.						
Nereis cockburnensis (Augener, 1913, p. 155 and below)	O	8 in an oblique double row	2 in tandem	5-11 in a triangular patch of 2-3 rows	6 in 2 rows in an oval patch	5 large cones in a circle or cross	A broad band of many cones, 5-7 deep below and 2-4 deep at sides
Nereis languida (Kinberg, 1866, p. 169)	(Unknown)						
Nereis robusta (Quatrefages, 1865, p. 545)	(Obscure; the areas not clearly identifiable; paragnaths of maxillary ring much smaller than those of oral ring. Buccal ring with a broad band on ventral side and 2 lateral groups on dorsal side; maxillary ring with a band, and 3 groups above.)						
Perinereis amblyodonta (Knox, 1951, p. 222)	2-4 cones in tandem	3-4 rows in a triangular patch	A triangular patch	A triangular patch	Usually 5 with a central one & 4 behind	A single curved ridge	About 50 cones in 2 irregular rows
Perinereis variodentata (Augener, 1913, p. 181 Kott, 1951, p. 112)	10 to many or only 3	About 9 in 2 oblique rows	Only 2, or a transverse patch of 2 rows	About 12 in 3 rows	6 cones in 2 rows	2 transverse ridges on each side	About 80 cones in 5-6 rows below, to only 1 row at the sides
Perinereis vallata (Knox, 1951, p. 219; Augener, 1913, p. 178)	1-3 cones	6-10 cones	About 14 cones in a cluster	About 20 cones in a cluster	1 set far back, or 3-4 in a triangle	7-9 or 8-20 in a transverse row	3 alternating rows of cones that may be flattened
Perinereis brevicirris (Knox, 1951, p. 220)	1-3 cones	A triangular cluster	Quadrate patch with 1-3 cones on each side	A crescentic cluster	3 in a triangle or 4	10-20 conical or flat cones in a transverse row	3 irregular transverse rows or a few more
Perinereis camiguinoides (Knox, 1951, p. 221)	1 large cone	Oblique group of 2-3 rows	3-6 smaller cones	Oblique group of 7-15 cones	3 large cones in triangle	2 (or 3) long transverse ridges	Up to 50 large and small cones in 2-3 rows

Name of species	Area I	Area II	Area III	Area IV	Area V	Area VI	Areas VII & VIII
Perinereis barbara (Monro, 1926, p. 317)	2 in tandem	Oblique patch of about 12 in 2 rows	Small group of 9 (or 14)	Large crescentic group	8 cones in a cross	A transverse ridge	A transverse band about 4 (to 8-9) deep
Perinereis ponuiensis (Augener, 1924, p. 351)	1 or 2 in tandem	10-11 in 2 rows, or only 5 cones	10 (to only 4) at middle and 1 isolated at each side	27 (or only 12-13) in 3-4 rows	one only	4 ridges on each side	25 cones in 2 rows widely separated from Area VI.
Perinereis pseudocamiguina (Augener, 1924, p. 340)	2 in tandem	8-10 in an oval patch	11 in 4 transverse rows in an oval group	27-28 in a triangular group	3 cones in a triangle	1 transverse ridge	About 42 cones in a band of 3 rows
Perinereis calmani Monro, 1926, p. 319)	2 in tandem	An oblique double row	A small transverse group	About 3 rows in an oblique group	O	1 transverse ridge	An irregular row of 10 to 12 cones
Perinereis nigropunctata (Augener, 1922, p. 25)	7 in quadrate group	17 in a double or triple row	About 23 in an oval patch	About 23 in a crescent or in 4 rows	3 in a triangle	1 ridge distally pointed	About 33 in 2 rows, to only 1 row at the sides
Perinereis vancaurica (Augener, 1922b, p. 23)	2 in tandem	Many small cones	3 groups, a median large, and a pair or small, lateral ones	Many small cones	3 in a triangle	2 ridges on a side	2 broad bands, an anterior with larger and smaller cones, and a posterior with larger cones; continuous with VI.
Perinereis obfuscata (Monro, 1931, p. 18)	5 cones in a cross	\bout 25 in a triple row	Abuot 25 in a transverse patch	About 20 in an oblique patch	one large	1 ridge on each side	A double row
Perinereis helleri (Monro, 1931, p. 14)	2 in tandem	7 in subquadrate patch	3 groups; a median one of 9 concs, and 2 in tandem on each side	About 10 in an oval patch	2 in a triangle	A transverse ridge on each side	About 17 in an irregular double row
Perinereis camiguina (Monro, 1931, p. 15)	(As in *Perinereis helleri*, see above)						
Platynereis australis (Knox, 1951, p. 224)	O	O	4-5 interrupted lines of pectinae in a small transverse group	Several rows of pectinae (the most conspicuous area)	O	A small patch of 3-4 imperfect lines	5 small groups of minute pectinae

Name of species	Area I	Area II	Area III	Area IV	Area V	Area VI	Areas VII & VIII
Platynereis dumerilii antipoda (See below)	O	O	As in *P. australis*	As in *P. australis*	O	2-3 close imperfect lines	as in *P. australis*
Platynereis magalhaensis (Hartman, 1948, p. 60)	O	O	3 interrupted rows of pectinae	5 longer and 2 shorter rows of pectinae (the most conspicuous area)	O	3 long rows of fine pectinae	About 5 transverse, well-separated series of pectinae
Platynereis polyscalma (Fauvel, 1932, p. 115)	O	O	pectinate clusters	pectinate clusters	none or one	A pectinate cluster	A double row
Platynereis bicanaliculata (See below)	O	O	A broad area, 4-5 transverse rows of pectinae	7-8 rows of pectinae (see below)	O	2 irregular transverse rows of pectinae	A continuous narrow band of pectinae
Pseudonereis rottnestiana (Augener, 1913, p. 186)	1 cone only	3-4 irregular rows of pectinae or part of another row	4 rows of many pectinae in an irregular rectangular area	4-5 rows of many pectinae or also 5 single cones	O	5-6 cones in a transverse row	About 16 to 19 large cones in a row, or in an alternating double row
Pseudonereis anomala (Fauvel, 1922, 494; Kott, 1951, p. 93)	(Similar to that of *Pseudonereis rottnestiana,* above.)						

Key to Genera and Species

1 Parapodia uniramous .... *Namanereis quadraticeps*
1 Parapodia biramous after the second parapodium 2
2 First segment with parapodia (fig. 18) .... *Micronereis halei*
2 First segment a smooth ring (fig. 12) 3
3 Peristomium prolonged forward ventrally to encompass the prostomium *Cheilonereis peristomialis* 4
3 Peristomium not prolonged forward 4
4 Ventrum of anterior segments with rows of papillae (fig. 2) *Australonereis ehlersi*
4 Ventrum without rows of papillae 5
5 Proboscis with fleshy, cirrus-like papillae (fig. 13) .... *Ceratocephala edmondsi*
5 Proboscis with dark horny paragnaths on some or all areas 6
5 Proboscis without processes, its epithelium smooth or at most wrinkled *Nicon aestuariensis*
6 Paragnaths absent from oral ring of proboscis .... *Ceratonereis* 11
6 Paragnaths absent from maxillary ring of proboscis .... *Eunereis marri*
6 Paragnaths typically present on both oral and maxillary rings of proboscis 7
7 Paragnaths in the form of pectinated rows on some or all areas 8
7 Paragnaths in the form of conical, separated processes 9
8 Maxillary ring with conical, and oral ring with pectinated processes *Pseudonereis* 14
8 Both rings of proboscis with pectinated processes, or areas I, II and V usually bare *Platynereis* 15
9 Area VI of proboscis with transverse ridges, or the ridges broken up into points in a straight transverse row .... *Perinereis* 19
9 Area VI of proboscis with conical processes 10
10 Median and posterior notopodia with falcigers (fig. 30) or also spinigers .... *Nereis* 20
10 Notopodia with spinigers; lacking falcigers .... *Neanthes* 24
11 Prostomium deeply incised at midfront; dorsal cirri very long *Ceratonereis mirabilis*
11 Prostomium not incised in front; dorsal cirri not unusually long 12
12 Neuropodia with simple and composite falcigers .... *Ceratonereis erythraeensis*
12 Neuropodia without simple falcigers 13
13 Dorsal and ventral cirri greatly reduced; area I of proboscis with 3-4 or to 6-9-pointed paragnaths .... *Ceratonereis aequisetis*
13 Dorsal and ventral cirri not greatly reduced; area I of proboscis bare *Ceratonereis lapinigensis*
14 Notopodia without homogomph falcigers .... *Pseudonereis rottnestiana*
14 Notopodia with homogomph falcigers in posterior segments *Pseudonereis anomala*
15 Notopodia with simple, heavy falcigers (fig. 38) in median and posterior segments *Platynereis bicanaliculata*
15 Notopodia without simple falcigers 16
16 Posterior notopodia with composite setae in which the appendage is strikingly ridged transversely .... *Platynereis polyscalma*
16 Posterior notopodia without setae that are distally ridged 17
17 Posterior notopodia with homogomph falcigers (fig. 37) 18
17 Posterior notopodia without falcigers or only an occasional inconspicuous one *Platynereis magalhaensis*
18 Modified natatory parapodia in female present after segment 22 *Platynereis dumerilii antipoda*
18 Modified natatory parapodia in female present after segment 30 *Platynereis australis*
19 Area VI of proboscis with a single ridge on each side
(Includes *Perinereis amblyodonta, barbara, calmani, helleri, camiguina, obfuscata, nigropunctata* and *pseudocamiguina*. See Chart IV for distinguishing characteristics of each.)
19 Area VI of proboscis with two ridges on each side
(Includes *Perinereis camiguinoides, variodentata* and *vancaurica*. See Chart IV for distinguishing characteristics.)
19 Area VI of proboscis with four ridges on a side .... *Perinereis ponuensis*
19 Area VI of proboscis with a continuous transverse series of cones that extends across areas V and VI
(Includes *Perinereis vallata* and *brevicirris*. See Chart IV for distinguishing characteristics.)
20 Notopodial lobe diminishes in size (fig. 26) in posterior segments 21
20 Notopodial lobe does not diminish in size posteriorly 22
21 Homogomph falcigers distally boldly bifid (fig. 27) .... *Nereis jacksoni*
21 Homogomph falcigers not boldly bifid (fig. 30) .... *Nereis cockburnensis*

22 Prostomium deeply incised at middle front .... *Nereis falcaria*
22 Prostomium not incised at middle front 23
23 Notopodial falcigers boldly bifid .... *Nereis denhamensis*
23 Notopodial falcigers not boldly bifid .... *Nereis peroniensis*
24 Notopodial lobe comes to be very large on both sides of dorsal cirrus in medium and posterior segments .... *Neanthes oxypoda*
24 Notopodial lobe does not come to be so large 25
25 Areas I and V of proboscis nearly or quite bare 26
25. Area I, or also V of proboscis with paragnaths 27
26 Notopodial lobe diminishes in posterior segments .... *Neanthes kerguelensis*
26 Notopodial lobe does not diminish in size in back .... *Neanthes unifasciata*
27 Area V of proboscis bare; area I with 7 or 8 cones in an oval patch *Neanthes angusticollis*
27 Area V with paragnaths; area I otherwise 28
28 Area I was only 1 or 2 cones .... *Neanthes vaalii*
28 Area I with many more cones 29
29 Areas V to VIII with a continuous band of many cones in 8 or 9 rows, to only 3 or 4 rows; area I with about 40 cones .... *Neanthes cricognatha*
29 Areas V to VIII with a continuous band of cones, including a single row of larger cones on the maxillary side of the area; area I with about 9 cones *Neanthes*, near *cricognatha*

Australonereis, new genus

Type A. EHLERSI (Augener), 1913

This differs from other nereid genera most strikingly for having paired fleshy transverse ridges (fig. 2) on the ventrum of anterior segments. The armature of the proboscis consists of paired distal jaws and soft papillae on the maxillary ring only; the oral ring is bare. The first segment or peristomium is a smooth, apodous ring. The first two parapodial segments are uniramous; all others are biramous. Notopodia have spinigerous, composite setae and single acicula; neuropodia have spinigers and falcigers. In ovigerous adults the median and posterior segments have paired, papillar processes, presumably coelomostomes, located on the dorsal side of notopodia, within the base of the dorsal cirrus.

Australonereis approaches *Tylonereis* Fauvel (1911, p. 376) in its pharyngeal structures, but in the latter all setae are homogomph spinigers. *Leonnates* Kinberg (1866, p. 168) also has membranous processes on the proboscis, but they are limited to the oral ring, whereas the maxillary ring has horny paragnaths.

A single species, *A. ehlersi* (Augener) is referable to it.

AUSTRALONEREIS EHLERSI (Augener) 1913

Fig. 1-11

Nereis (Leonnates) ehlersi Augener, 1913 pp. 142-145, pl. 3, fig. 53, text-fig. 12 a-c.

Leonnates ehlersi and *Leptonereis ehlersi* Monro, 1938, pp. 618-623, fig. 7-13.

Locality—Numerous individuals come from Lakes Entrance, Victoria, on the inner side of Ninety-mile Beach, where there is a considerable tidal current, and where the water is marine, from a sand spit uncovered at low tide; the worms form beds and occupy U-shaped tubes in which the ends are uncovered (observations by Miss Barbara Dew).

Australonereis ehlersi has remained known only through sparse catches from the Swan River area, Western Australia. The present numerous individuals come from Lakes Entrance, Victoria. They are conspicuously large, measure to 140 mm. long and 12 mm. wide with parapodia. The body is greatly depressed, especially in its median and posterior regions. The following description is based on specimens from Victoria.

On the everted proboscis the oral ring is dusky and smooth or irregularly rugose; it lacks processes. The maxillary ring is pale and has a continuous band of many, more than 50, short, cirrus-like processes in 3 to 5 irregular rows.

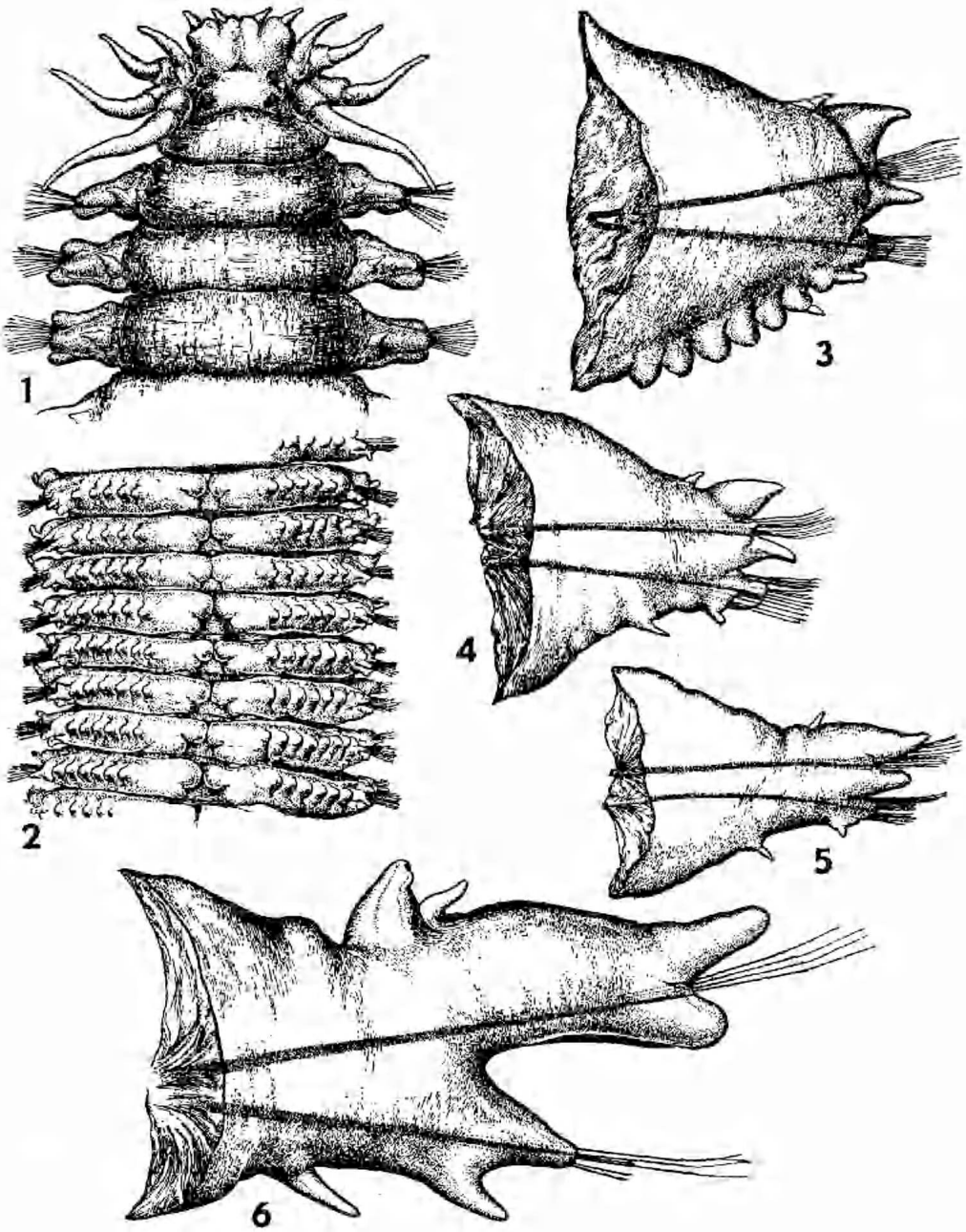

Fig. 1-6. *Australonereis ehlersi*

1. Anterior end in dorsal view, including first 3 setigers, x 10·5.
2. Ventral side of body showing segments 10 to 17, x 5·2.
3. Anterior parapodium from papillated region, seen from the front, x 10·5
4. A parapodium from the middle region of the body, seen from the front, x 10·5.
5. A slightly more posterior parapodium seen in posterior view, x 10·5.
6. A far posterior parapodium showing the large coelomostome adjacent to the small dorsal cirrus, x 51.

They are fewest at the sides and most numerous midventrally; those on the oral end are slightly larger than those on the maxillary one. They are limited to a band that separates maxillary and oral parts, giving the impression, especially on the retracted proboscis, of being oral, not maxillary (hence Augener's observation that they are oral). The jaws are translucent, light yellow to horny brown distally; they have 7 to 9 short, oblique teeth along the cutting edge.

The first 6 parapodial segments have each a slender ventral cirrus on a papillar elevation. From the seventh segment the ventrum has an additional elevation within the base of the ventral cirrus and on the next 9 or 10 segments these papillations increase to about 6 or 7 on a side (fig. 2). The ventrum in this region is rugose. After segment 30 the papillations diminish rapidly and are absent from posterior segments.

Parapodia of the first 17 to 19 segments differ from those farther back in that their distal lobes (both notopodia and neuropodia) are thick and glandular. The glands are most conspicuous at anterior sides of parapodia and reach their maximum thickness and extent in segments 10 to 18, where the uppermost lobe comes to be transversely rugose and resembles the furrows of the ventrum in the same region. After about segment 20 these parapodial areas are abruptly absent. Dorsal and ventral cirri are slender, short and inconspicuous; they are simple and tapering throughout the body.

Setae are in thick, yellow fascicles and most numerous in anterior segments. Those in notopodia are entirely spinigerous (fig. 11). Neuropodia have both spinigers and falcigers (fig. 7-10). The latter have a cutting edge with a single series of denticles (fig. 7, 9); they terminate in a curved process that is bounded by a series of denticulations continuous from the cutting edge. Acicula occur singly in parapodial rami; each is a slender, distally tapering, straight black rod; the deeply embedded base is pale.

In postmedian segments, from about segment 50 in shorter, to about segment 68-70 in longer, individuals, there is present, immediately within the base of the dorsal cirrus, a papillar organ which comes to increase in size to surpass that of its corresponding dorsal cirrus (fig. 6); its distal end is penetrated by a pore. By means of microtome sections [1] it is possible to trace ducts which penetrate these papillae, and to follow their course into the coelomic spaces. Occasionally one can find larger ova in the cut. It can hardly be doubted but that these are coelomoducts which function at maturity for release of gonadial products. Whether primitively retained from ancestral stages, or secondarily derived might be determined from a study of the development of this species. Among the numerous individuals examined, I have found only ovigerous ones, all showing the coelomostomes present from an anteromedian region to the posterior end of the body.

In this connection it is interesting to recall a statement by the late E. S. Goodrich (1945, p. 173): "In species of Nereidae, co-existing with metanephridia are a pair of specialized coelomostomes, the so-called 'dorsal ciliated organs.' . . . They occur in all species . . . . but may vary somewhat in size. They appear in the young, persist throughout life, though in the heteronereid phase they are usually reduced or absent. That this 'dorsal ciliated organ' is indeed the representative in the Nereidae of the coelomoduct or genital funnel of the Capitellidae and other Polychaeta, ... there can now be no doubt . . . But it has lost its original genital function in the Nereidae, no longer requires an opening to the exterior, and has become converted into a 'ciliophagocytal organ,' at all events in the majority of species in which the genital products are known to escape by dehiscence . . . It is possible, however, that some species still exist which have no specialized epitokous stage, and that in them the coelomostomes still function as genital ducts."

[1] I am indebted to Mr. Donald J. Reish for the preparation of the sections.

It seems probable that *Australonereis ehlersi* is indeed such a species in which the dorsal ciliated organ is replaced by the coelomostome, and that it functions as a genital duct, acquiring an opening to the exterior. There is no indication of epitoky or parapodial transformation in the individuals that have been examined.

The pygidium is a terminal, dark brown collar; a pair of long, cirriform processes is inserted ventrally; each is about as long as the last 10 segments.

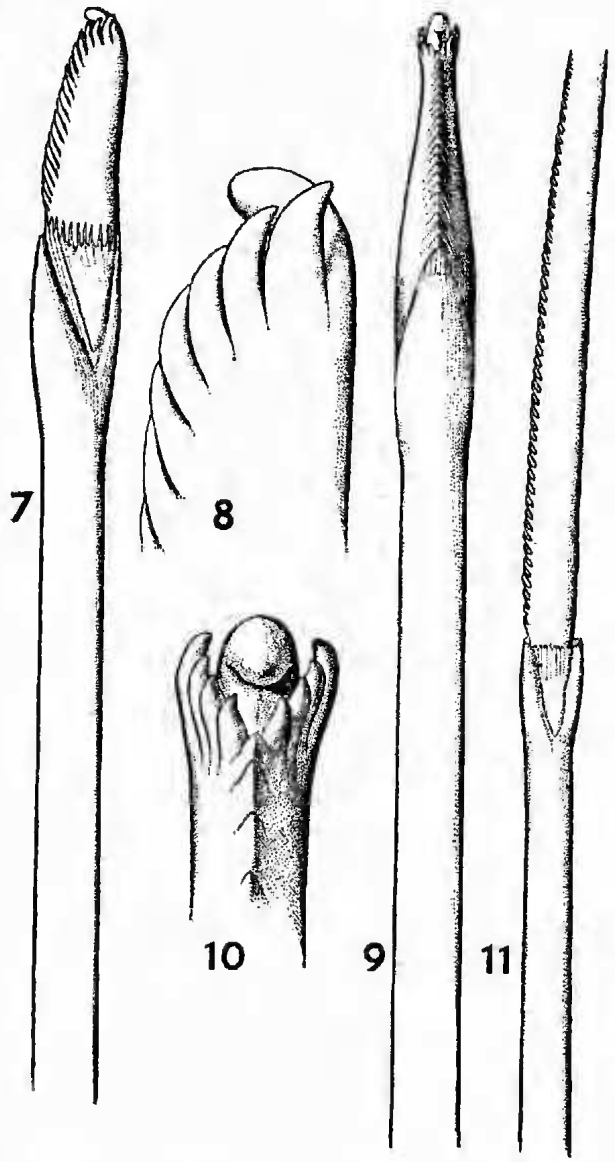

Fig. 7-11
Australonereis ehlersi

7. Neuropodial falciger seen from the side, x 521.
8. Distal end of a neuropodial falciger showing details of cutting edge and terminal fang, x 2010.
9. Neuropodial falciger seen from the cutting edge, showing arrangement of single row of denticulations, x 521.
10. Distal end of a neuropodial falciger seen from the cutting edge, x 2010.
11. Portion of a homogomph spiniger seen from the side, the tapering pointed tip not shown, x 521.

Australonereis ehlersi was first assigned to the genus Leonnates (Augener, 1913) and later to *Leptonereis* (Monro, 1938, p. 618). Augener thought that the oral ring is papillate; Monro found the maxillary ring to have papillae. Augener found no falcigers above the neuroaciculum; Monro found them in anterior segments; Augener called the falcigers heterogomph; Monro said they are nearly to quite homogomph. These discrepancies can readily be attributed to subjective interpretations. The species cannot be assigned to *Leonnates* Kinberg or

Leptonereis Kinberg. In the first the maxillary ring of the proboscis has horny paragnaths; in the second the proboscidial rings are both bare.

Australonereis ehlersi is now known from opposite sides of the southern half of Australia, at Swan River, Western Australia and Lakes Entrance, Victoria.

CERATOCEPHALA Malmgren, 1867, emended

Type C. LOVENI Malmgren

The generic diagnosis is here expanded to include species in which the pharyngeal papillar processes are present on both rings of the proboscis instead of only the oral ring (see Hartman, 1952, pp. 15-18, for detailed account).

Ceratocephala edmondsi, n. sp.

Fig. 12-17

Locality—American River, Kangaroo Island, South Australia; very common in the sand of a cockle (*Katelysia* sp.) bank (9 specimens), coll. S. J. Edmonds.

Length of a larger, posteriorly incomplete, individual is 27-39 mm.; width at the widest (anterior) part is 3-4 mm.; number of segments is more than 60. The general colour (preserved) is pale with melanistic spots on dorsal and ventral sides; it resembles that of species of *Platynereis*. The prostomium has two pairs of eyes that are large, subequal, in trapezoidal arrangement; the anterior ones are wider apart. The proboscis (everted) shows the following parts: area I (fig. 12) has one papilla, II and V are bare; III and IV together have 5 cirriform papillae in a transverse row; VI has a single papilla on a side; VII and VIII have 9 cirriform papillae in a transverse row (fig. 13). Jaws are thin, translucent, horny brown; they have 7 to 9 shallow crenulations at the cutting edge.

The first 2 parapodia on a side are uniramous; each has composite spinigers and falcigers; succeeding parapodia are biramous. From the third a notopodium is developed and has a full fascicle of composite spinigers. At the eighth or ninth notopodium there are 15 to 20 spinigers and single black acicula. Neuropodia have a supra-acicular bundle of about 10 spinigers and 9 falcigers, and single black acicula that taper distally and are turned upward at the tip. The sub-acicular setal bundle has about 14 falcigers (fig. 16) and 7 spinigers (fig. 17). Dorsal and ventral cirri are simple throughout. A fiftieth parapodium is shown in fig. 14 and an eighth one in fig. 15.

The habitat is sandy beaches in which cockle shells occur; the nereid occupies a sandy tube constructed with a thin, gelatinous matrix (observation by Mr. S. J. Edmonds).

Ceratocephala edmondsi differs from other species of the genus in that the maxillary ring of the pharynx has papillae instead of lacking them; ventral cirri are simple throughout, instead of double on some or all segments. The genus is a small one, known for only 5 or 6 other species or subspecies (Hartman, 1952, p. 19) from widely scattered parts of the world. *C. edmondsi* is the only one known from Australia. *C. sibogae* Horst, off Dutch East Indies, is the nearest in geographic range. It is clearly separable from *C. edmondsi* in its pharyngeal processes in that the former has papillae nearly absent, with only 2 present on area V.

It is a pleasure to dedicate the species to its collector, Mr. S. J. Edmonds of the University of Adelaide, South Australia.

C. edmondsi is known from only one locality, American River, Kangaroo Island, South Australia, littoral.

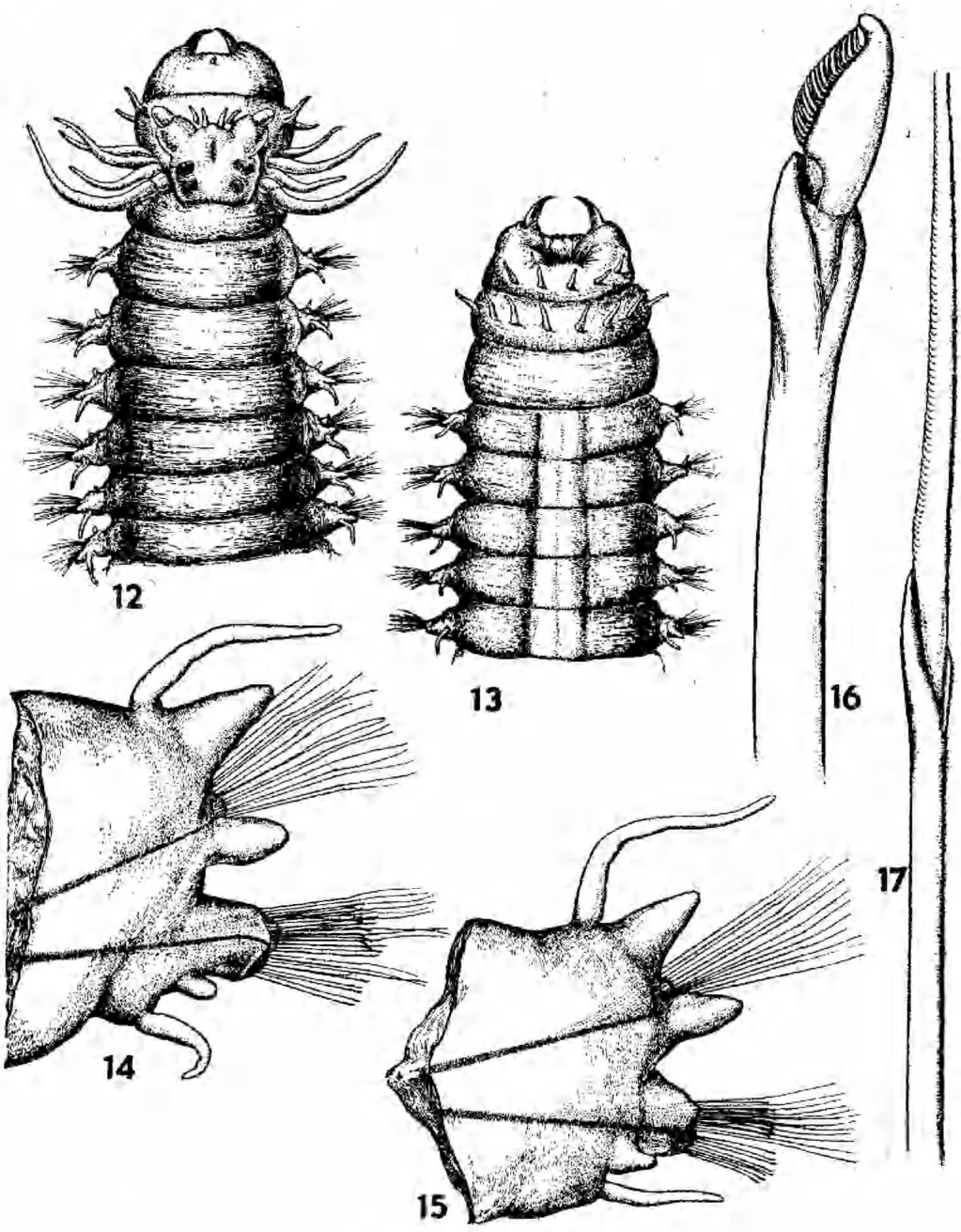

Fig. 12-17. *Ceratocephala edmondsi*

12. Anterior end with everted proboscis and first 6 setigers, in dorsal view, x 15.
13. Anterior end with proboscis everted, in ventral view, x 15.
14. Fiftieth parapodium seen from the front, x 45.
15. Eighth parapodium seen from the front, x 45.
16. Neuropodial falciger from a posterior parapodium, x 700.
17. Articulating portion of a spiniger, seen from the side, x 700.

Micronereis Claparède, 1863

Type M. variegata Claparède

Micronereis halei, n. sp.

Fig. 18-21

Locality—Sellick Beach, South Australia, at outer edge of reef, 16 January 1936, at low tide from stones in rock pools (12 individuals), coll. Mr. H. M. Hale and Mr. K. Sheard.

This is a small, white species, greatest length is about 7 mm.; width 0·55 mm. without and 0·85 mm. with parapodia. Number of segments is 20 to 25. The prostomium is broadly quadrate (fig. 18); its posterior margin is clearly marked off from the first segment. There are 2 pairs of lenticulated eyes, with the anterior pair slightly larger and wider apart than the posterior one; all are similar in that the basal part is dark red and there is a large, spherical pale lens. The frontal margin of the prostomium is weakly indented, and the small oval paired palpi can be seen only by viewing the prostomium from below. There are no prostomial frontal antennae. The four pairs of tentacular cirri are directed forward and outward; all are similar with slight variation in length; the antero-ventral pair are shortest and the dorsal posterior pair are longest. All 8 are on short bases (not shown in fig. 18). Each has a slight subdistal swelling, diffusely brown in colour, with a simulted articulation just below the brown pigment.

The first segment has uniramous parapodia in which the setal lobe is long, compressed, directed laterally; it has a cirriform ventral cirrus that is attached near the middle of the parapodial base; it extends distally not as far as the lobe. Stumps of 8 to 10 slender setae and single acicula are visible. The second parapodium is similar to the first but a little larger.

The third and successive segments have biramous parapodia. Notopodia and neuropodia are widely separated from each other. The dorsal cirrus is a long, cirriform process at the upper, outer edge; the ventral cirrus is similar but somewhat shorter and attached near the middle of the lower base of the parapodium. In addition, both notopodia and neuropodia have a long, digitate lobe that extends distally, attached one at the inferior outer edge of the notopodium, the other at the superior outer edge of the neuropodium (fig. 20). These lobes resemble dorsal and ventral cirri but they are not so thick and extend laterally not quite as far as the cirri. Acicular lobes are compressed, broadly triangular and have an acute tip.

All setae are homogomph spinigers (fig. 2) with the longest appendages several times as long as the shortest ones. The uppermost have the longest appendage and the length diminishes gradually ventrally. Notopodia have 15 to 25 spinigers and single yellow acicula. Neuropodia have 15 to 20 spinigers and single yellow acicula.

The pharyngeal apparatus (seen only by dissection since the proboscis was not everted on any individual) is a subspherical, muscularized mass. It connects distally with the mouth and proximally with the thin-walled, alimentary tract. There are no paragnaths. A pair of large translucent, yellow jaws are inserted, one on either side of the muscular tissue. Each jaw is broadly oval at the base and continued distally to end in about 6 triangular teeth along the concave cutting edge (fig. 19). If the jaws are dimorphic in this species as they have been described for *M. variegata* Claparède (Racovitza, 1893), it may be presumed that the description is based on the jaws of a female individual.

The only other known species of the genus is *Micronereis variegata* Claparède, from the Mediterranean Sea, more widely recorded from western Canada (Berkeley and Berkeley, 1948, p. 60), though with some doubt. *M. variegata* Claparède differs from *M. halei* in that digitate lobes are lacking from the inner,

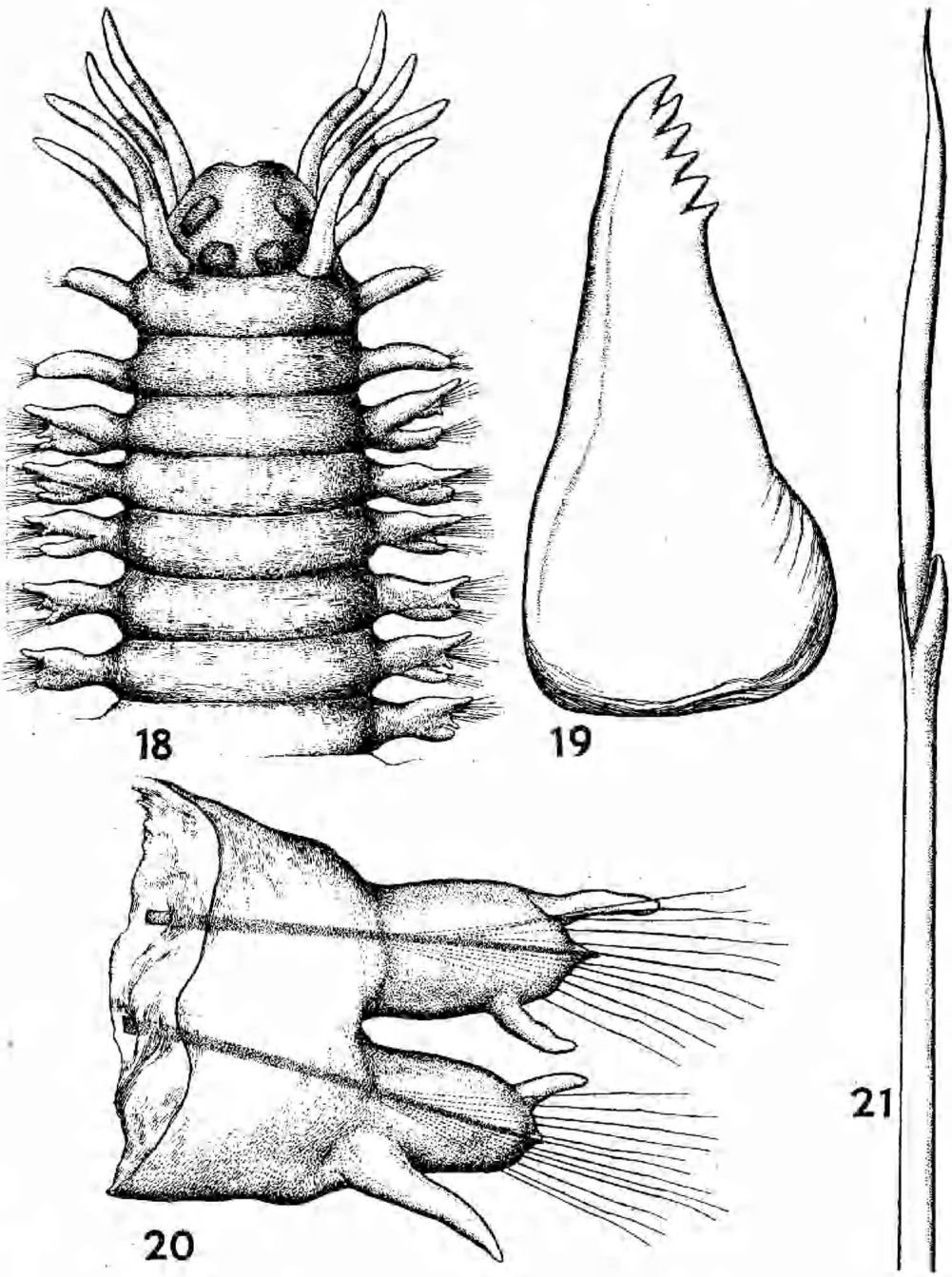

Fig. 18-21. *Micronereis halei*

18. Anterior end in dorsal view, proboscis retracted, x 94.
19. An entire jaw plate showing distal toothed edge and embedded part, x 417.
20. A median parapodium in posterior view, x 62·5.
21. Spinigerous seta from a median parapodium, x 1638.

proximal margins in the first; the pharyngeal jaws lack the broad base, and the first parapodia have conspicuous tufts of setae. Prostomial and peristomial structures also differ (see Fauvel 1923, pp. 332-333, for illustrated account).

It is a pleasure to name this species for its collector, Mr. Herbert M. Hale, Director of the South Australian Museum.

Micronereis halei has been found only from littoral zones in South Australia.

Namanereis Chamberlin, 1919

Type N. quadraticeps (Blanchard)

Namanereis quadraticeps (Blanchard), 1849

Lycastis quadraticeps Benham, 1909, pp. 242-244, pl. ix, fig. 2-10.

This brackish nereid was first described from Chile. Benham (1909, p. 244) recorded it from Campbell Island, on shore near the exit of a creek from the flank of Mount Honey; the shore above high-water mark is traversed by numerous little watercourses oozing through the earth above (Benham); also in sea pools. Benham's detailed description compares so favourably with individuals I have examined from southern and central California, from a similar brackish niche, that specific identity seems probable. The only differences I can find are these: The pygidium shown by Benham (his fig. 5) as a constricted collar with a pair of divergent lateral processes, is shorter and has a longer ventral lobe with the anal aperture between the upper and lower parts; the ventral portion has a pair of small, oval papillae inserted at the distalmost margin. Neuropodial falcigers are shown by Benham with a single series of subequal crenulations at the cutting edge; I see a single row of teeth that are longest near the base and diminish in size to near the distal third. The pharyngeal jaws have teeth that are long, sharp, obliquely inserted. These differences may have no specific importance.

Namanereis quadraticeps may be expected to occur in high intertidal zones of the southern shores of Australia; it should be sought especially in zones where there is only a light spray of sea-water.

Neanthes Kinberg, 1866

Type N. vaalii Kinberg

The collections have made possible an examination of the type species from the type locality, for a genus which is widely represented in littoral zones of the Northern Hemispdere. Both atokal and epitokal individuals of both sexes are represented. The account below is based on these collections.

Neanthes vaalii Kinberg, 1866

Fig. 22-25

Neanthes vaalii Kinberg, 1866, p. 171.
Nereis albanyensis Augener, 1913, pp. 149-153, pl. ii, fig. 6, text fig. 14.
Neanthes vaalii Augener, 1922, pp. 20-21.

Localities—American River, Kangaroo Island, in mud flats (5 individuals), coll. S. J. Edmonds; Port Adelaide, in tidal river (2 male and 8 female epitokes), coll. S. J. Edmonds; Rushcutters Bay, Port Jackson, scraped off hull of a yacht, 6 Oct. 1950, (1), coll. B. Dew; Athol Bight, public jetty, off piles, 12 Oct. 1950, (2), coll. B. Dew; Milsons Point, Port Jackson, off piles and mooring chains, 23 Oct., 1950, (3), coll. B. Dew; Venus Bay Inlet, Eyre Peninsula, South Australia, associated with clusters of *Modiolus*, (3), coll. S. J. Edmonds; Point Wynyard, north-west Tasmania, Apr. 1936 (4 tiny individuals), coll. H. M. Hale and N. B. Tindale.

Preserved, the pigment pattern resembles that of *Platynereis* species in having dark segmental spots over the dorsum and parapodia. Length of atoke individuals (preserved) is 70 mm. Notopodia have spinigers only; neuopodia have a supra-acicular fascicle of homogomph spinigers and heterogomph falcigers, and a sub-acicular fascicle of heterogomph spinigers and heterogomph falcigers (fig. 25). There are no notopodial falcigers.

In male epitokes the first 7 segments have thickened dorsal cirri; the first 18 segments are otherwise unmodified, or the eighteenth is slightly changed with a few accessory lobes. Natatory setae are present from segment 19. Natatory parapodia are present to the end of the body; the pygidium has a rosette of many similar, slender papillae. Overall size is somewhat less than that for the female which measures to 50 mm. long.

Typical natatory parapodia (fig. 24) have dorsal cirri that are crenulate, and accessory lobes. In epitokal females modified natatory setae are present from segments 21 to 89; parapodia from 90 to 102 (posterior end) differ in having only single dark acicula in each ramus (setae lacking); the body terminates in a pygidium with a constricted smooth collar.

In mature individuals the 4 prostomial eyes are enlarged, arranged in a rectangle; each is a circular convex disk, purplish red at the periphery, fading centrally; each has a tiny white circular lens.

In atokal individuals the notopodia lack conspicuous preacicular and post-acicular lobes such as characterize northern representatives of the genus *Neanthes*, notably *N. virens* (Sars) and *N. brandti* (Malmgren). Median (fig. 22) and posterior (fig. 23) parapodia are similar to one another.

The pharyngeal processes (based on a female epitokal individual from Port Adelaide) are arranged thus: I has 2 cones in tandem; II has 10 cones in a triangular area; III has about 22 cones in a broadly oval patch; IV has a large crescent of about 30 cones of larger and smaller cones; area V has 3 cones in a triangle; VI has 3 cones in a transverse line; VII and VIII (continuous) have 2 or 3 irregular rows of 30 or more cones.

Nereis albanyensis Augener, 1913, p. 152, from Western Australia has been referred to *Neanthes vaalii* Kinberg (Augener, 1922, p. 20). *Nereis* (*Neanthes*) *albanyensis* Kott (1951, p. 106) from Point Peron, Western Australia, is another species and belongs to the genus Nereis, s. s. since there are dorsal falcigers in notopodia.

The distribution of *Neanthes vaalii* is indicated in Chart II.

NEANTHES, near CRICOGNATHA (Ehlers) 1905

Nereis cricognatha Ehlers, 1905, p. 29; Augener, 1913, pp. 163-164.
Neanthes cricognatha Knox, 1951, pp. 217-218, pl.45, fig. 6-8; Fauvel, 1947, p. 8.
Nereis arenaceodentata Benham, 1916, p. 134, pl. 46, fig. 1-3.

Localities—American River, Kangaroo Island, (2), coll. S. J. Edmonds; Port Adelaide, outer harbour pilings, sublittoral fouling materials, (1), coll. S. J. Edmonds; Sellick Beach, South Australia, on edge of reef permanently covered, (2), coll. H. M. Hale.

Length attains about 30 mm. Notopodia lack homogomph falcigers, thus this is regarded as a species of *Neanthes*. Parapodial lobes are bordered with a dark, glandular margin. On the proboscis both oral and maxillary rings have complete circlets of many paragnaths.

The present individuals differ from *Neanthes cricognatha* previously recorded (see synonymy above) in that areas V to VIII of the proboscis have a circlet of larger cones on the maxillary side, and 4 to 7 rows of uniformly much smaller cones on the oral side.

The distribution of the stem species is indicated in Chart II.

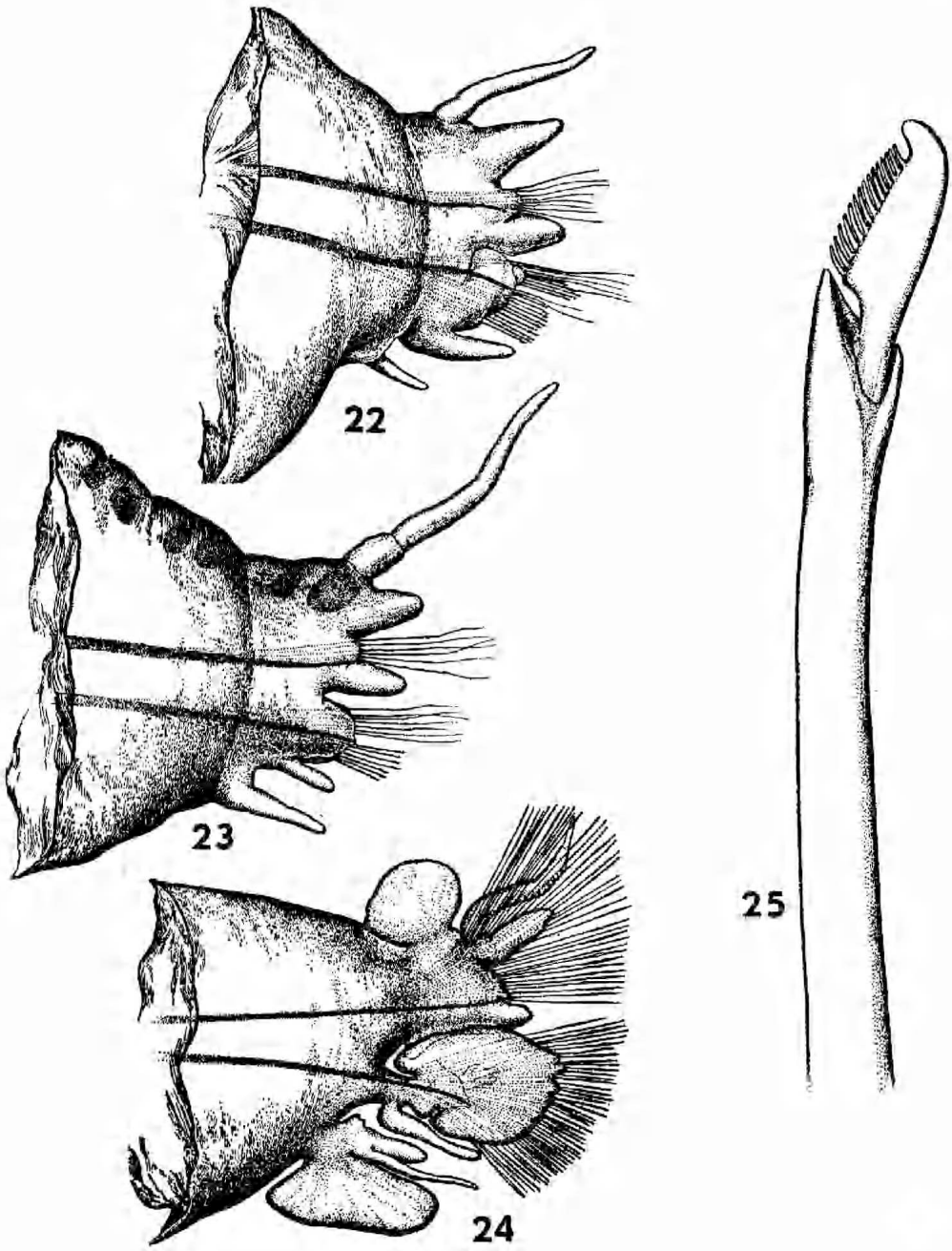

Fig. 22-25 *Neanthes vaalii*

22. A median parapodium in anterior view, showing maximum development of acicular lobe, x 35·7.
23. Fifteenth last parapodium in anterior view, x 63·2.
24. Thirtieth parapodium from an epitokous male specimen, x 15·7.
25. Falcigerous neuropodial hook from an unmodified parapodium, x 658.

Neanthes kerguelensis (McIntosh), 1885

Nereis kerguelensis McIntosh, 1885, pp. 225-227, pl. 35, fig. 10-12, pl. 16a, fig. 17, 18; Fauvel, 1916, p. 433; Benham, 1916, p. 122.

Localities—Port Willunga, S. Aust., 18 Nov., 1945, (2), coll. S. J. Edmonds; and Sellick Beach, S. Aust., on edge of reef, Jan. 1936, (1), coll. H. M. Hale.

Notopodia have spinigers only, thus this is referred to *Neanthes* Kinberg. On the proboscis areas I and V are bare; VI has one cone on a side; VII and VIII have a single row of 9 cones; each of areas II, III and IV has a heap of small paragnaths. In posterior parapodia the notopodial lobe diminishes in size and is far surpassed by the acicular lobe of the same segment.

Nereis kerguelensis oligodonta Augener (1913, pp. 164-166), from Western Australia, also lacks homogomph falcigers and is presumably a species of *Neanthes*. It differs from the stem species in having only 3 cones in a transverse row on areas VII and VIII.

Neanthes angusticollis (Augener), 1913

Nereis angusticollis Augener, 1913, pp. 145-149, pl. 2, fig. 14, text fig. 13.
Not Kinberg, 1866, p. 169.

Notopodial falcigers are absent, thus this is referred to Neanthes Kinberg. On the proboscis area I has 7 or 8 cones in an oval heap, II has at least 20 in an oblique triangular area; III has about 12 in an oblique oval group; IV has about 25 cones in a triangle; V is bare; VI has 9 or 6 in a rounded group; VII and VIII form a broad transverse band with 2 or 3 to 5 rows, the band widest midventrally and narrowing toward the ends. Acicula are black and occur singly in parapodial bases.

Nereis angusticollis Kinberg (1866, p. 160) from Tahiti is a *Nereis*, sensu stricto, since there are homogomph falcigers in notopodia.

Nereis Linnaeus, 1758

Type N. pelagica Linnaeus

The species of *Nereis* from the southern half of Australia are peculiar for having several in which the notopodial lobe diminishes in size going back, and homogomph falcigers have a large lateral tooth near the apex. These characters are known for *N. falcaria, N. jacksoni, N. denhamensis* and *N. thompsoni* (see below). In others the oral ring is nearly to quite bare, approaching a condition in species of *Ceratonereis* Kinberg; such are the species *N. jacksoni* and *N. falcaria*. Others have tentacular (buccal) cirri that are annulate, as in *N. cockburnensis*. These features are neither generic nor limited to Australian species, but are more frequently encountered among species from the southern hemisphere than elsewhere. Thus, the coarsely toothed homogomph falciger is known for *N. zonata-persica* Fauvel from Persia, and for *N. funchalensis* Langerhans from Madeira. The posterior notopodial lobe diminishes in size in *Neanthes kerguelensis* (McIntosh) (see Ehlers, 1897). Annulation of tentacular cirri is encountered in other species and genera, notably *Nereis eugeniae* (see Ehlers, 1897), *Nereis angusta* Kinberg (1866), *Neanthes kerguelensis* (see Ehlers, 1897), *Neanthes ruficeps* (Ehlers, 1905) and *Platynereis australis* (see Ehlers, 1905), all from the Southern Hemisphere.

The several species discussed below are those which have occurred in greatest abundance and for which some details have been obscure.

Nereis denhamensis Augener, 1913

Nereis denhamensis Augener, 1913, pp. 156-159, pl. 3, fig. 51, text fig. 16; Fauvel, 1922, p. 494; Kott, 1951, pp. 99-101, fig. 3, 4.

Homogomph falcigers first appear after segment 20 to 30 and number 3 or 4 in a fascicle; they are thicker than their accompanying spinigers. The falcate appendage is short, weakly curved and projects from the end of the shaft for only about half its length; the cutting edge has 2 or 3 small teeth.

On the proboscis area I has 1 or 2 cones in tandem; II has about 12 cones in 2 rows; III has about 12 cones in 3 rows; IV has 12 to 15 cones in a triangular patch; V has none; VI has 8 to 10 in an oval patch of 2 or 3 rows; VII and VIII have a single row of 8 to 10 larger cones.

In epitokal male individuals the parapodial change to natatory condition is at segment 15. Dorsal cirri of modified segments are sharply geniculate in their distal extremity and crenulate along the outer margin of the basal part.

One character named by Augener (1913, p. 158) but not commented on further, states that: "An den vorderen Rudern mit dorsalen Grätenborsten ist die Spitze der ventralen Sicheln gedeckt." If this indicates the presence of a hooded condition of anterior neurofalcigers, it describes a character unique for this species.

See Chart II for distribution.

Nereis jacksoni Kinberg, 1866

Fig. 26-29

Nereis jacksoni Kinberg, 1866, p. 169; Augener, 1922, pp. 27-30, fig. 6; Augener, 1927, pp. 130-133; Knox, 1951, pp. 216-217; Kott, 1951, pp. 95-98; fig. 3.
Nereis heirissonensis Augener, 1913, pp. 159-163, pl. 3, fig. 52, text fig. 17.

Localities—Sellick Beach, Sth. Aust., on edge of reef permanently covered and at low tide, Jan. 1936, (1), coll. H. M. Hale and K. Sheard; Shell Point, Botany Bay, N.S.W., from a 6-month fouling plate, estuarine, Feb. 1947, (4), coll. B. Dew; Cape Cove, Port Jackson, N.S.W., dredged in 3-4 fms. from a gritty bottom, Oct. 1950 (4), coll. B. Dew; Hungry Point, Cronulla, N.S.W., under rocks, Sept. 1950, (2), coll. B. Dew.

The proboscis has few paragnaths; areas I and V have none; II and III have a few cones and IV has a few more; VI has 1 to 4 only; VII and VIII have a single row of only 2 to about 7 cones (see also Chart IV). Jaws are dark amber in colour, thin, and have 5 or 6 oblique teeth at the cutting edge.

Prostomial antennae are long; they extend forward to near the distal end of the palpi. Peristomial cirri are short, the longest reaches back only to about the second setigerous segment and others are shorter; all are irregularly annulated. The 4 eyes are embedded and visible through the smooth epithelium; the 2 of a side are nearer together but widely separated from those of the opposite side; the anterior ones are the larger. Each eye has a reddish purple iris and a large pale to white lens, nearly or over half as large as the diameter of the eye. The anterior margin of the prostomium is entire, not incised.

In posterior segments the notopodial, or supra-acicular, lobe diminishes (fig. 26) conspicuously in size but is visible as a distinct lobe to the end of the body. Homogomph falcigers are present in median and posterior segments; their earliest presence varies from the fourteenth, or not before segment 17 or 18. They have an appendage (fig. 27, 28) that is short, distally bifid; those in front are similar to those behind or the latter may lack the basal-most teeth (fig. 29).

Some individuals from Shell Point, Botany Bay, taken 2 Feb. 1941, are ovigerous, with large ova crowding the body cavity from the third setiger more posteriorly. There are no signs of epitoky, such as the presence of modified lobes or specialized setae. Indications are that development is direct. This is in contradiction to what Kott (1951, p. 97) found for individuals from Western Australia. Augener (1913, pp. 159-60) examined about 50 specimens taken from May to September and found them all atokal.

The more extended distribution is indicated in Chart IV.

NEREIS THOMPSONI Kott, 1951

Nereis (Neanthes) thompsoni Kott, 1951, pp. 103-105, fig. 5.

This is here referred to *Nereis* since notopodia have homogomph falcigers. It bears resemblance to *Nereis denhamensis* (see above) but differs in its much higher paragnathal count. See Charts I to IV for diagnostic characteristics.

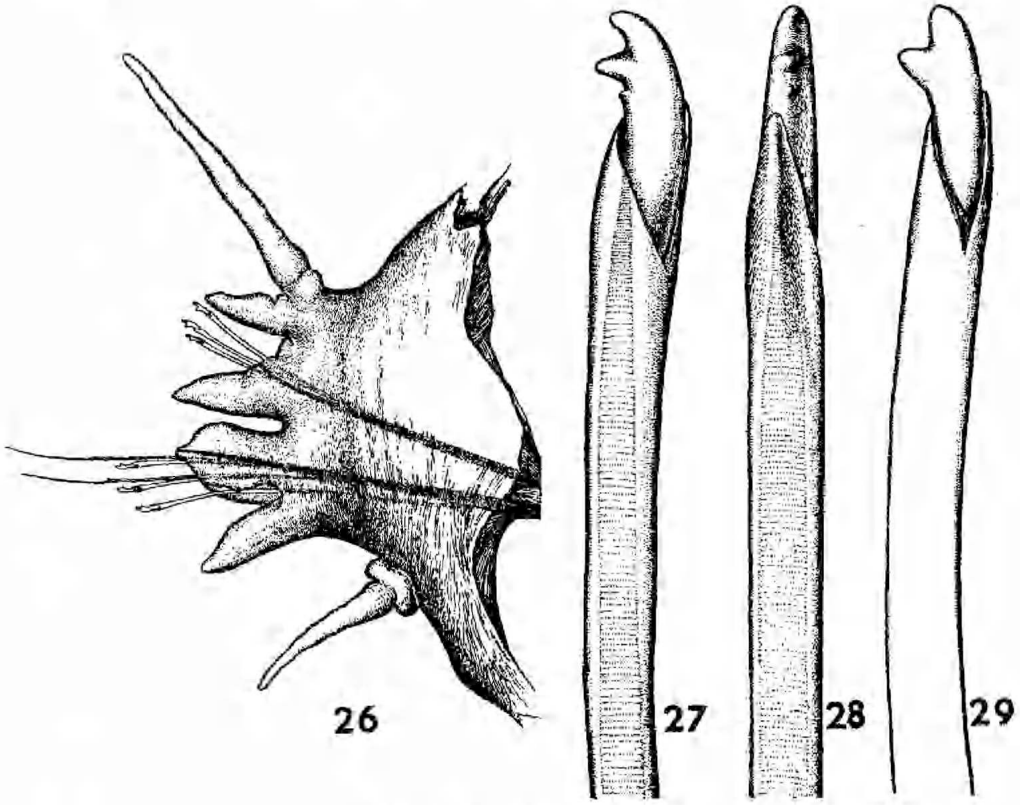

Fig. 26-29 *Nereis jacksoni*

26. Twenty-sixth parapodium seen from the front, x 40.
27. A homogomph falciger from twenty-sixth parapodium seen from the side, x 620.
28. A homogomph falciger from twenty-sixth parapodium seen from the cutting edge, x 620.
29. A homogomph falciger from a far posterior parapodium, x 400.

NEREIS PERONIENSIS Kott, 1951

Nereis callaona peroniensis Kott, 1951, pp. 101-102, fig. 4.

This is here erected to specific category since its affinities are believed to be more remote from *Nereis callaoana* Grube than its author thought. In *N. peroniensis* the homogomph falcigers of posterior notopodia taper distally to a blunt point and have a coarse tooth at the cutting edge. In *N. callaona* Grube the corresponding falciger has a much longer appendage that is distally anchylosed and there are no coarse teeth along the cutting edge (see *N. pseudonereis* Hartman 1940, pls. 26, 27, a synonym of *Nereis callaona* Grube,[2] for further characteristics). *N. callaona* Grube is known only from Peru.

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[2] I am indebted to Mr. Donald J. Reish for having made a comparison of type specimens.

N. peroniensis Kott comes nearer *Nereis zonata persica* Fauvel, as described by Pruvot (1930, pp. 47-50, pl. 3) from New Caledonia. In both the pharyngeal armature and notopodial falcigers show great resemblance.

Nereis cockburnensis Augener, 1913

Fig. 30-32

Nereis cockburnensis Augener, 1913, pp. 153-156, fig. 15 a-c.

Localities—Sellick Beach, S. Aust., from stones in rock pools, Apr. 1936 (about 31 individuals including some epitokes), coll. H. Hale; Sellick Beach, St. Vincent Gulf, from limestone reef covered at dead low water, Jan. 1937, (10), coll. H. M. Hale; Royal Australian Navy torpedo range at Pittwater, Broken Bay, from piles and under rocks, (5), coll. B. Dew; Pennington Bay, south coast of Kangaroo Island, (3), coll. S. J. Edmonds.

Tentacular cirri are annulate, resemble those of a eunicid (thus not as shown by Augener, 1913, pl. 3, fig. 47). The longest cirri when laid back, reach to the fifth setigerous segment.

A unique and heretofore undescribed feature is the presence of 2 kinds of notopodial falcigers. Anterior segments, from the first biramous one, have homogomph falcigers with a toothed cutting edge (fig. 30) resembling that of the corresponding neuropodial, heterogomph falciger (31). In median and posterior segments these notopodial falcigers are replaced by one which has a shorter appendage and traces of transverse ridges (fig. 32).

On the proboscis area I has a single tooth or 3 small cones in tandem (Augener described none); II has 10 cones in 2 rows (Augener gave 8 cones in 2 rows); III has only 4 to 6 cones (Augener said 2 in tandem); IV has about 18 cones in 3 rows with the largest ones on the side toward the jaws (Augener gave 5 to 11 cones in 2 or 3 rows). Area V has about 8 smaller cones or varying to only 1 cone (Augener gave 6 cones in 2 rows); VI has 5 or 4 cones in a circular area (as Augener stated); VII and VIII have a continuous band of many paragnaths with a single row of about 9 larger ones on the side toward the jaws (Augener described a broad band of many), and 5 to 7 irregular rows of many closely spaced cones on the side toward the mouth.

In postmedian segments the upper notopodial lobe comes to be small, triangular and diminishes farther back as an inconspicuous lobe.

An epitokal ovigerous individual, from Sellick Beach, 11 April 1936, has homogomph falcigers present from the first biramous parapodium. Accessory natatory lobes are first present from segment 17, at the upper base of the dorsal cirrus. Natatory setae are also present, but not yet emergent, from segment 17. The last 11 segments lack accessory lobes, indicating the presence of a third body region in epitoky.

Nereis cockburnensis was first described from Sharks Bay in 2-4½ meters, and Cockburn Sound, South Channel in 6½-8 metres on a rocky bottom. The present collections come from South Australia and New South Wales.

Perinereis Kinberg, 1866

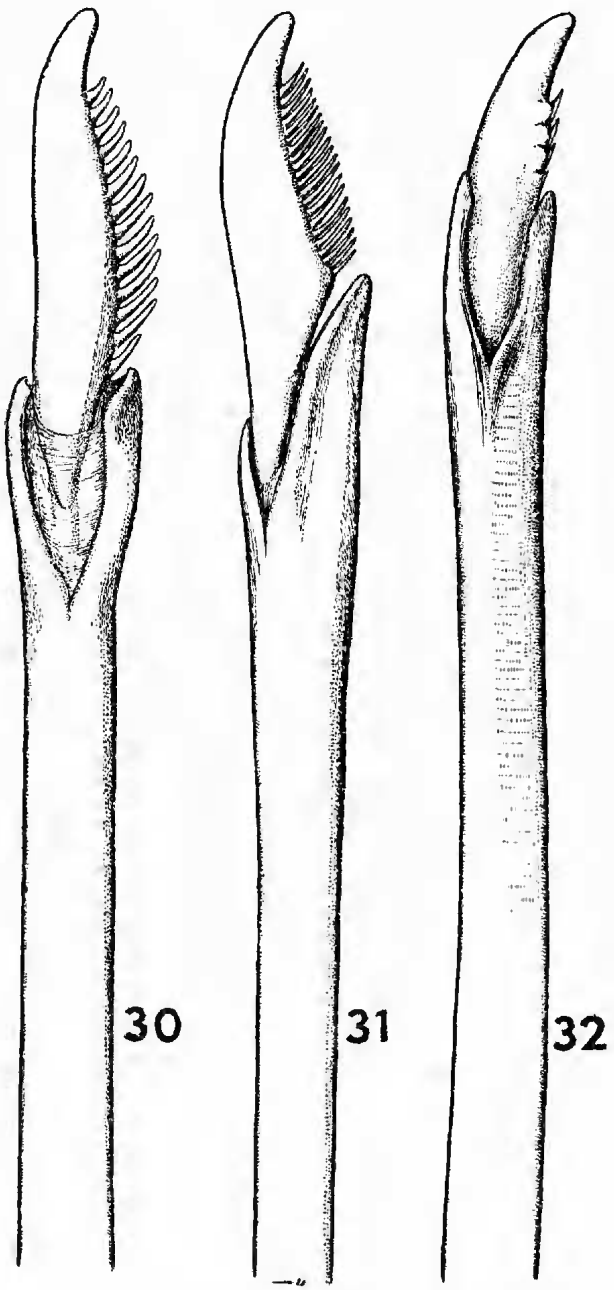
Type P. amblyodonta (Schmarda)

The 14 species indicated on Charts I to IV (see above) are largely tropical or subtropical, thus belonging mainly to the Damperian and Solanderian provinces or to New Zealand. A few species occur along southern shores of Australia (see below).

Perinereis amblyodonta (Schmarda), 1861

Nereis amblyodonta Schmarda, 1861, p. 106; Ehlers, 1905, p. 28.
Perinereis novae-hollandiae Kinberg, 1866, p. 175 and 1910, pl. 20, fig. 9.
Nereis (Perinereis) amblyodonta Augener, 1913, pp. 174-175; Augener, 1922, pp. 22-23.

Localities—American River and lagoons, Kangaroo Island, under rocks and in mud flats; also in Venus Bay jetty, with colonies of *Galeolaria*, (8), coll. S. J. Edmonds; Port Willunga, S. Aust., in colonies of *Hormosira*, (4), coll. Miss P. Mawson; Port Jackson, Sydney Harbour, N.S.W., under rocks and in clumps of *Galeolaria*, (7), coll. B. Dew; Milsons Point, Port Jackson, N.S.W., wharf piles and on mooring chains, (1), coll. B. Dew.



Nereis cockburnensis

Fig. 30-32

30. A notopodial falciger from sixth parapodium, x 650.
31. A neuropodial falciger from sixth parapodium, x 650.
32. A notopodial falciger from a far posterior segment, x 650.

This species is easily identified for the presence of long dorsal lobes of posterior notopodia, and for the arrangement of paragnaths on areas V and VI. See Charts I to IV for further details and more extended distribution.

PERINEREIS VARIODENTATA Augener, 1913

Nereis (Perinereis) variodentata Augener, 1913, pp. 179-182, pl. 3, fig. 50, text fig. 19.

Localities—Sellick Beach, St. Vincent Gulf, S. Aust., from stones in rock pools at low tide and from limestone reef covered at dead low water, (2), coll. H. M. Hale; Pt. Wynward, north-west Tasmania, April 1936, (2), coll N. B. Tindale.

See Charts I to IV for distinguishing characteristics and distribution.

PERINEREIS VALLATA (Grube) 1857

Nereilepas pacifica Schmarda, 1861, p. 107.

Nereis (Perinereis) vallata Augener, 1913, pp. 175-177; Augener, 1923, pp. 26-27.

Perinereis vallata Fauval, 1932, pp. 108-109; Knox, 1951, pp. 218-219, pls. 45-46.

Locality—Port Willunga, S. Aust., (1), coll. S. J. Edmonds.

See Charts I to IV for further details.

PLATYNEREIS Kinberg, 1866

Type P. MAGALHAENSIS Kinberg

Among the 5 species to be encountered in littoral zones in Australia and New Zealand, 1, *P. australis* (Schmarda) is perhaps limited to New Zealand; another, *P. polyscalma* Chamberlin, is tropical. *P. magalhaensis* Kinberg, *P. dumerilii antipoda*, new subspecies, and *P. bicanaliculata* (Baird) occur in the Peronian and Flindersian provinces but all are not limited to them. See also Charts I-IV, above.

PLATYNEREIS DUMERILII ANTIPODA, new subspecies

Fig. 33-37

Nereis (Platynereis) australis Augener, 1913, pp. 182-184, and Augener, 1923, pp. 35-39. *Not* Schmarda, 1861.

Localities—Pennington Bay, south coast of Kangaroo Island, among algae, (5), coll. S. J. Edmonds; Pittwater, Broken Bay, N.S.W., on piles. Sept. 1949, associated with *Nereis cockburnensis* and *Perinereis calmani*, (2, including 1 subepitoke), coll. B. Dew; Hungry Point, Cronulla, N.S.W., Aug. 1950, (2) coll. B. Dew; Elizabeth Bay, Port Jackson, N.S.W., from mooring buoy, 28 Oct. 1950 (1 subepitoke female), coll. B. Dew; Point Wynward, north-west Tasmania, (5), coll. H. M. Hale; Sellick Beach, St. Vincent Gulf, S. Aust., limestone reef covered at dead low water (8 juveniles), coll. H. M. Hale.

These individuals have been compared with *Platynereis dumerilii* (Audouin and M. Edwards) from the Mediterranean Sea. A comparison of diagnostic parts follows:

	P. d. antipoda South Australia	*P. dumerilii* Mediterranean Sea
Notopodial spinigers in median and posterior segments have a length/width ratio of:	1·3/40, thus are shorter-appendaged	1/80, thus are longer-appendaged
Median parapodia, at about segment 40, have a supra-acicular fascicle of:	3 spinigers and 3 falcigers	10 spinigers only
First presence of notopodial (fig. 37) falcigers is in:	Anteromedian segments, where they are numerous and conspicuous	Postmedian segments, and they are inconspicuous and few
Acicula are coloured:	light to dark brown	black

Dorsal lobe of median and posterior segments is:	subquadrate	subtriangular
Paragnaths of area VI are:	obscure, with 2 weakly developed rows of pectinae	2 well-developed rows of pectinae
Dorsal cirri of posterior segments are:	very long (fig. 36)	not so long
In female epitoke, the upper base of the ventral cirrus has:	a long digitate lobe (fig. 35)	a short foliaceous lobe
In female epitoke, the posterior neuroacicular lobe has:	a digitate process (fig. 36)	no digitate process
In female epitoke, the parapodial change is at:	segment 22/23	segment 22-23/24 or 22/23, or 24/25

In the female epitoke the first 7 pairs of dorsal cirri enlarge (fig. 33) gradually.

The pharyngeal armature (specimen from Pt. Wynyard, Tasmania) shows areas I, II and V bare; III has 2 rows of obscure pectinae; IV is the most conspicuous area of the pharynx, with about 4 transverse series of pectinae; VI has 2 or 3 short lines of very weak pectinae; VII and VIII is an interrupted band with about 5 patches of 2 short rows each.

Individuals from Tasmania have simple gregarines in the alimentary tract, through middle and posterior third regions of the body.

P. dumerilii ocellata Pruvot (1930) from New Caledonia differs from *P. dumerilii antipoda* in that area VI of the proboscis is bare; the prostomium is marked with 3 dark spots, resembling eyes, hence the varietal name.

P. dumerilii antipoda is known only from the Flindersian province.

Platynereis magalhaensis Kinberg

Platynereis magalhaensis Kinberg, 1866, p. 177.
Nereis (Perinereis) magalhaensis Augener, 1923, pp. 28-39.

Locality—Sellick Beach, S. Aust., low tide, 16 Jan., 1936, (2), coll. H. M. Hale and K. Sheard.

This is hardly separable from *P. australis* (Schmarda) from New Zealand, except in its epitokal stages. In this the male epitoke has the first 21 segments unmodified and natatory setae from segment 22; the female has 25 segments unmodified and natatory setae from segment 26. In both species the notopodia nearly or quite lack falcigers; a weakly developed one may be found in posterior segments. Other characteristics are detailed in Charts I to IV, above.

Platynereis bicanaliculata (Baird), 1863

Fig. 38, 39

Nereis bicanaliculata Baird, 1863, p. 109.
Nereis agassizi Ehlers, 1868, pp. 542-546, pl. 23, fig. 1.

Localities—Hungry Point, Cronulla, N.S.W., on fouling plate, 28 Sept., 1950 (1 female); Athol Bight, public jetty, 12 Oct. 1950, on kelp root (9); Camp Cove, Watsons Bay, Port Jackson, in 6-8 fms., 6 Oct. 1950 (6, including subepitokes); Port Jackson, on piles and mooring chains, 23 Oct. 1950 (15); all collections are from New South Wales, made by Miss Barbara Dew.

This strikingly characterized species is well known from the north-east Pacific as *Platynereis agassizi* (Ehlers). It was arresting to find it well represented in the collections from New South Wales. This led to a re-examination of large series from various parts of the Pacific, including some from Hawaii,

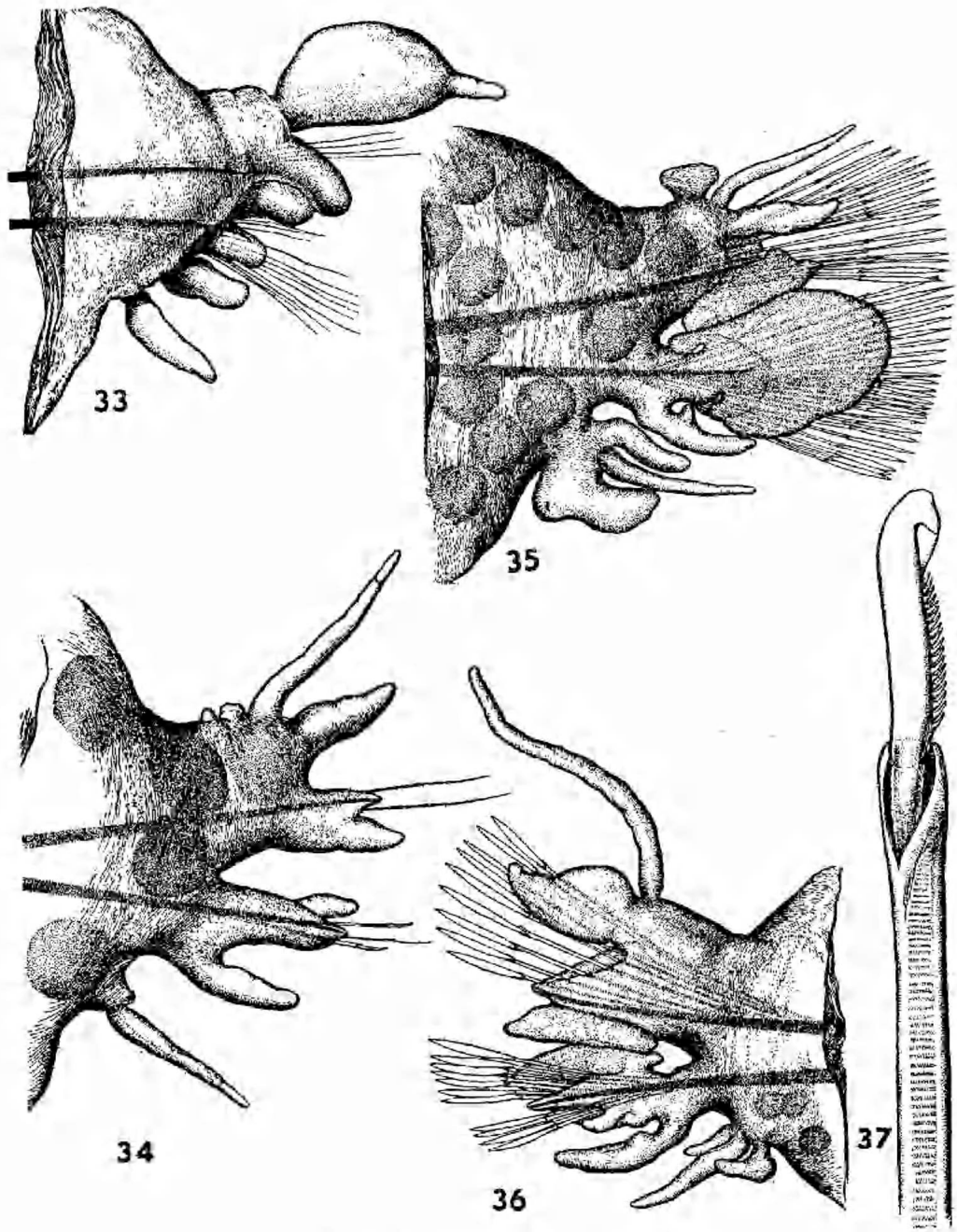


Fig. 33-37. *Platynereis dumerilii antipoda*

33. Fourth parapodium from female epitoke, showing enlarged dorsal cirrus, x 100.
34. Twenty-second parapodium from female epitoke, in posterior view, x 70.
35. Twelfth epitokal parapodium from female, in posterior view, x 50.
36. A far posterior parapodium from female epitoke, seen from the front, x 83.
37. A notopodial falciger from a posterior segment (specimen from Tasmania), x 832.

Nereis bicanaliculata Baird from Vancouver Island, western Canada, and many other collections from widely scattered parts of the eastern Pacific. I am unable to distinguish them morphologically, and am therefore indicating the synonymy above.

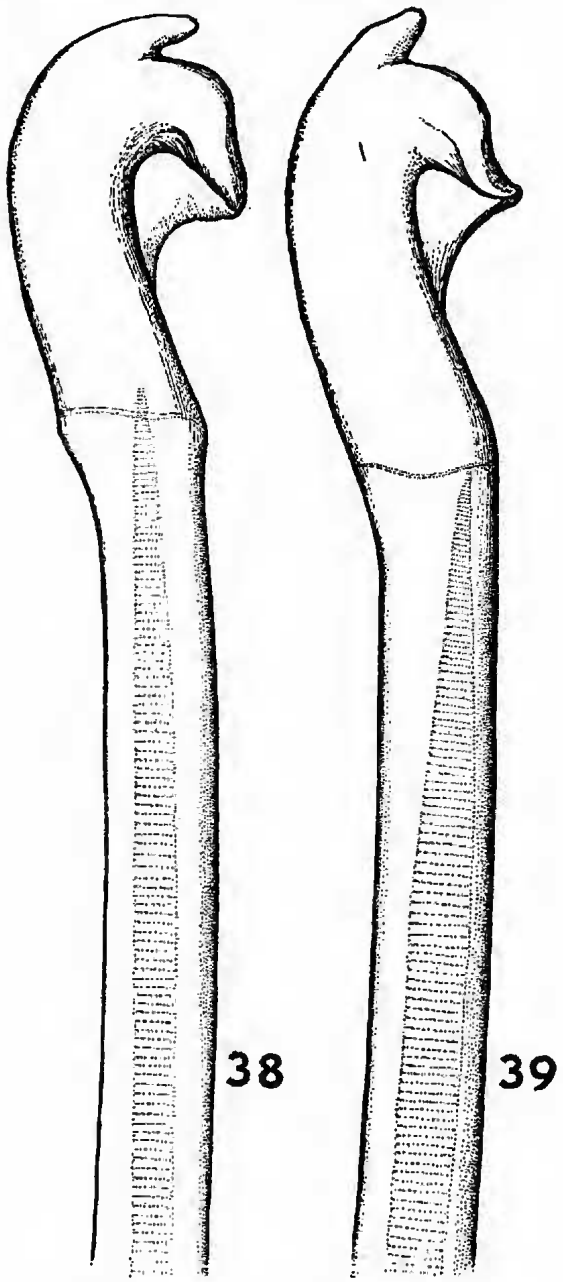


Fig. 38-39

Platynereis bicanaliculata

38. A simple notopodial falciger from a specimen from New South Wales, x 500.

39. A comparable notopodial falciger from one from California, x 500.

Most individuals (preserved) from New South Wales are melanistic, have paired dark patches over the sides of the body and along the parapodial bases. Large, simple, notopodial falcigers (fig. 38) are present from about segment 10 or 12 to the posterior end of the body; they occur singly or by twos or threes and have a dark brown to black tip. A corresponding falciger taken from a specimen from California is shown in fig. 39.

Neuropodial falcigers are composite, first present from about segment 50 and continue to the end of the body; they are most numerous in a fascicle in front and diminish in number behind.

On the pharynx the Australian individuals differ slightly from those of California, in that area IV of the proboscis is less, instead of more, conspicuous than area III.

The presence of simple notopodial falcigers is not limited to this genus or species, hence cannot be regarded as generic. *Ceratonereis erythraeensis* Fauvel has similar hooks in neuropodia.

The type collection of *Nereis bicanaliculata* Blaird (1863) deposited in the British Museum (Natural History) contains 8 pale (faded) specimens in good condition. The largest one, somewhat over 50 mm. long (thus about 2 inches as Baird stated) consists of about 96 segments; it is posteriorly incomplete. In some individuals the parapodia are subepitokous but none has natatory setae. In all, there are one or 2 dark brown, simple notopodial falcigers, first present in parapodia from segment 12 or 13 to the posterior end. On the proboscis areas I, II and V are bare; III has a broad, oval patch; IV has a broad crescent of 7 to 10 irregular rows (this is the most conspicuous region); VI has 2 or 3 rows of pectinae; VII and VIII, continuous, have 5 transverse rows of pectinae with faint indications of 2 other rows at the ends proximal to area VI. Jaws have 7 oblique teeth and a distal fang. These individuals are inseparable from what has usually been called *Platynereis agassizi* (Ehlers), widely known from the north-east Pacific.

Throughout its range, *Platynereis bicanaliculata* is apt to occur with (or near) *Platynereis dumerilii* (Audouin and M. Edwards) or one of its varieties. They are easily separable in that *P. bicanaliculata* has large, simple falcigers in notopodia whereas *P. dumerilii* (and its subspecies or varieties) have composite falcigers in notopodia. *P. bicanaliculata* remains unknown except in northern and southern parts of the Pacific; *P. dumerilii* is cosmopolitan in warm seas.

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